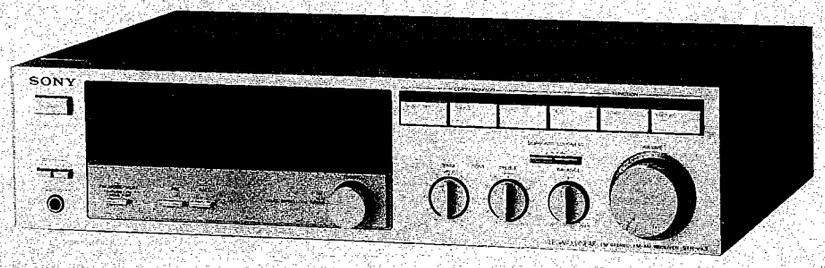
STR-VX3

US Model
Canadian Model



FM STEREO/FM-AM RECEIVER

SPECIFICATIONS

IO POWER SPECIFICATIONS

Power Output and Total Harmonic Distortion: With 8 Ω loads, both channels driven, from 20 – 20,000 Hz; rated 35 W per channel minimum RMS power with no more than 0.008 % total harmonic distortion from 250 mW to rated output.

SAFETY-RELATED COMPONENT WARNING!!

PONENTS IDENTIFIED BY SHADING AND MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VS AND IN THE PARTS LIST ARE CRITICAL TO E OPERATION. REPLACE THESE COMPONENTS H SONY PARTS WHOSE PART NUMBERS APPEAR SHOWN IN THIS MANUAL OR IN SUPPLEMENTS LISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES ÉCLATÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

OTHER SPECIFICATIONS

Amplifier Section

Damping Factor: 50 at 1 kHz, 8 Ω

Dynamic Headroom: 1.4 dB

Intermodulation (IM) Distortion: (60Hz : 7kHz = 4 : 1) Less than 0.008 % at rated output

Residual Noise: Less than 200 μV at 8 Ω

Inputs:

	Sensitivity	Impedance	S/N	Weighting network
PHONO	2.5mV 0.35mV*	50kΩ	80dB 75dB*	A
TAPE 1, 2	150mV 25mV	50kΩ	97dB 80dB*	A
AUX	150mV 25mV	50kΩ	97dB 80dB*	A

* '78 IHF

Measured with rated output power into 8Ω loads (both channels driven simultaneously) at 1kHz.

— Continued on next page —

SONY®
SERVICE MANUAL

Outputs (with rated input):

REC OUT 1, 2	Voltage 150mV	Impedance 4.7kΩ
HEADPHONES	Accepts low or high impedance headphones	
SPEAKER A, B	8 – 16Ω speakers are suitable	

Frequency Response: PHONO: RIAA equalization curve ± 0.5 dB
AUX, TAPE 1, 2: 5 Hz – 90 kHz $^{+0}_{-1}$ dB

Tone Controls: BASS: ± 8 dB at 100 Hz
TREBLE: ± 8 dB at 10 kHz

Loudness Control: (att. 30dB) +8 dB at 100 Hz, +3 dB at 10 kHz

Subsonic Filter: 12 dB/octave attenuation below 15 Hz

FM Tuner Section

Tuning Range: 87.5 – 108 MHz

Antenna Terminals: 300 Ω balanced, 75 Ω unbalanced

Intermediate Frequency: 10.7 MHz

Sensitivity at 50dB Quieting: 17.3 dBf, 4 μV (mono)
38.3 dBf, 45 μV (stereo)

Usable Sensitivity: 11.2 dBf, 2 μV IHF

Signal-to-noise Ratio: 83 dB (mono), 78 dB (stereo)

Harmonic Distortion: 0.15 % (mono), 0.25 % (stereo) at 1 kHz

Separation: 45 dB at 1 kHz

Frequency Response: 30 Hz – 15 kHz $^{+0.5}_{-2}$ dB

Selectivity: 60 dB at 400 kHz

Capture Ratio: 1.0 dB

AM Suppression Ratio: 54 dB

Image Response Ratio: 50 dB

IF Response Ratio: 90 dB

Spurious Response Ratio: 70 dB

RF Intermodulation: 60 dB

Muting Threshold: Approx. 25.2 dBf, 10 μV

AM Tuner Section

Tuning Range: 530 kHz – 1,610 kHz

Antenna: Built-in ferrite bar antenna
External antenna terminal

Intermediate Frequency: 450 kHz

Usable Sensitivity: 200 μV/m, ferrite bar antenna
100 μV, external antenna at 1,000 kHz

Signal-to-noise Ratio: 54 dB at 50 mV/m

Harmonic Distortion: 0.3 % at 50 mV/m, 400 Hz

Selectivity: 35 dB at 9 kHz

General

System: FM stereo, FM/AM superheterodyne tuner
Pure-complementary symmetry dc power amplifier

Power Requirements: 120 V ac, 60 Hz

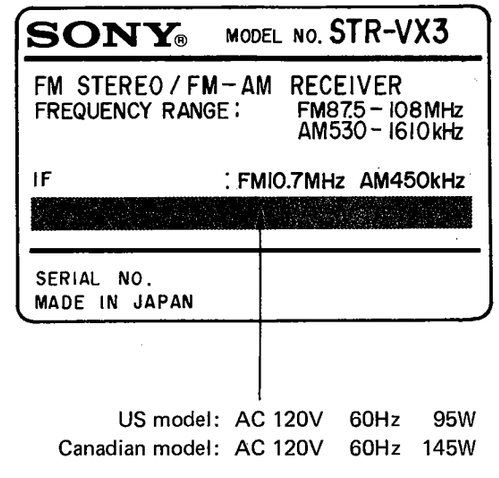
Power Consumption: US model: 95 W
Canadian model: 145 W

AC Outlets: One switched, 100 W
One unswitched, 100 W

Dimensions: Approx. 430 (w) x 105 (h) x 315 (d) mm (17 (w) x 4 3/8 (h) x 12 3/8 (d) inches) including projecting parts and controls

Weight: Approx. 6.5 kg (14 lb 6 oz), net
Approx. 7 kg (15 lb 7 oz) in shipping carton

MODEL IDENTIFICATION



US model: AC 120V 60Hz 95W
Canadian model: AC 120V 60Hz 145W

ELF (Metal Electrodes Face-Bonding) Components

Warning

If MELF components are forcibly removed from the printed circuit board with pincers or pliers, the circuit board pattern is likely to peel away. Always remove MELF components according to the procedure described on the next page. Replace MELF components with the lead type components.

MELF components are soldered directly to the surface of the printed circuit board.

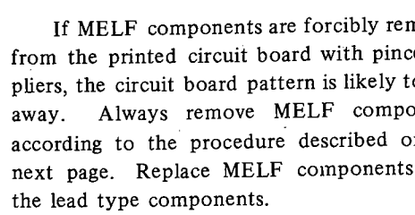
MELF resistors and capacitors have the same dimensions and are distinguished by their background colors: light brown for resistors, and pink or light green for capacitors.

The MELF resistor color coding is the same as for conventional resistors, and MELF capacitor color coding is the same as for tube-type ceramic capacitors. Note, however, that all MELF resistors are rated at ¼W and ±5%.

Components larger than resistors and without a color code are cross conductors, which are used instead of jumper wires.

1. Structure

(Resistors)



(Capacitors)

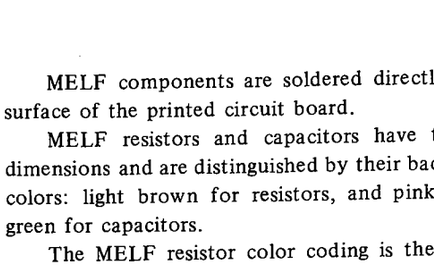
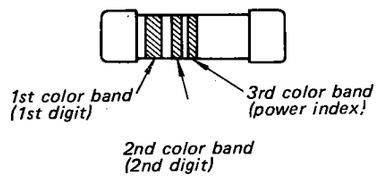
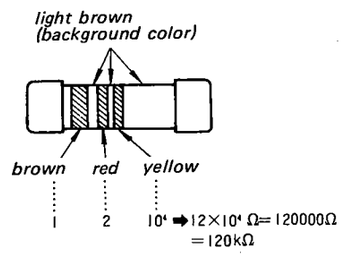


Fig. 1

2. Color Code Reading



(Example of Resistor)



(Example of Capacitor)

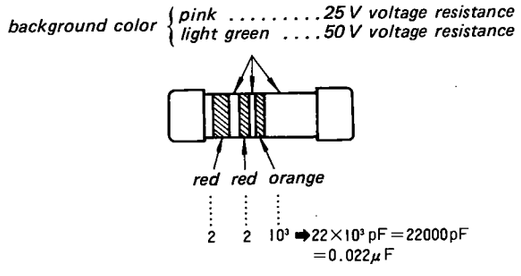


Fig. 2

3. How to Remove MELF Components and Mount Replacements

Use a soldering iron of at least 40W with an iron tip 4 mm in diameter and file the tip down to the angle shown in the diagram.

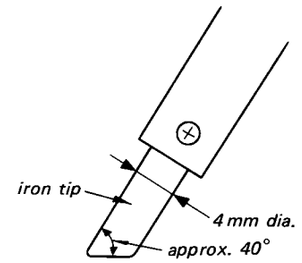


Fig. 3

1. Bring the flat surface of the soldering iron in equal contact with both soldered ends of the component.
2. The solder should melt in about 4 seconds. (The solder will melt more readily if a small amount of solder is attached to the iron tip and the iron tip is placed against the component.)
3. Once the solder has melted, tap the component aside with the tip of the soldering iron, and remove it from the board.

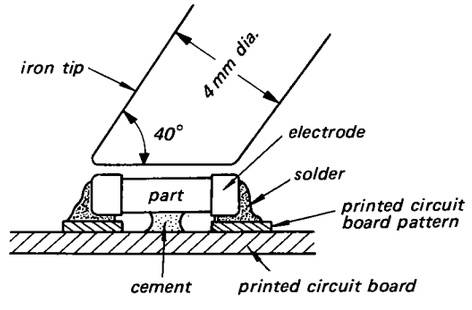


Fig. 4

4. Use lead type resistors or capacitors to replace the MELF components.
   These replacements may be mounted either with short leads (see Fig. 5), or by covering a lead with tubing (see Fig. 6).

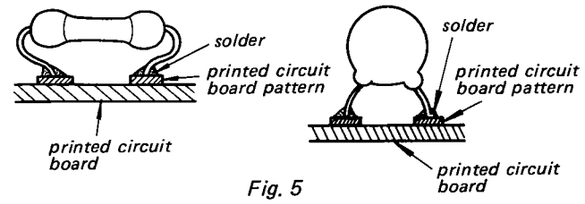


Fig. 5

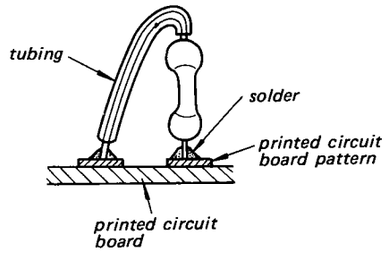
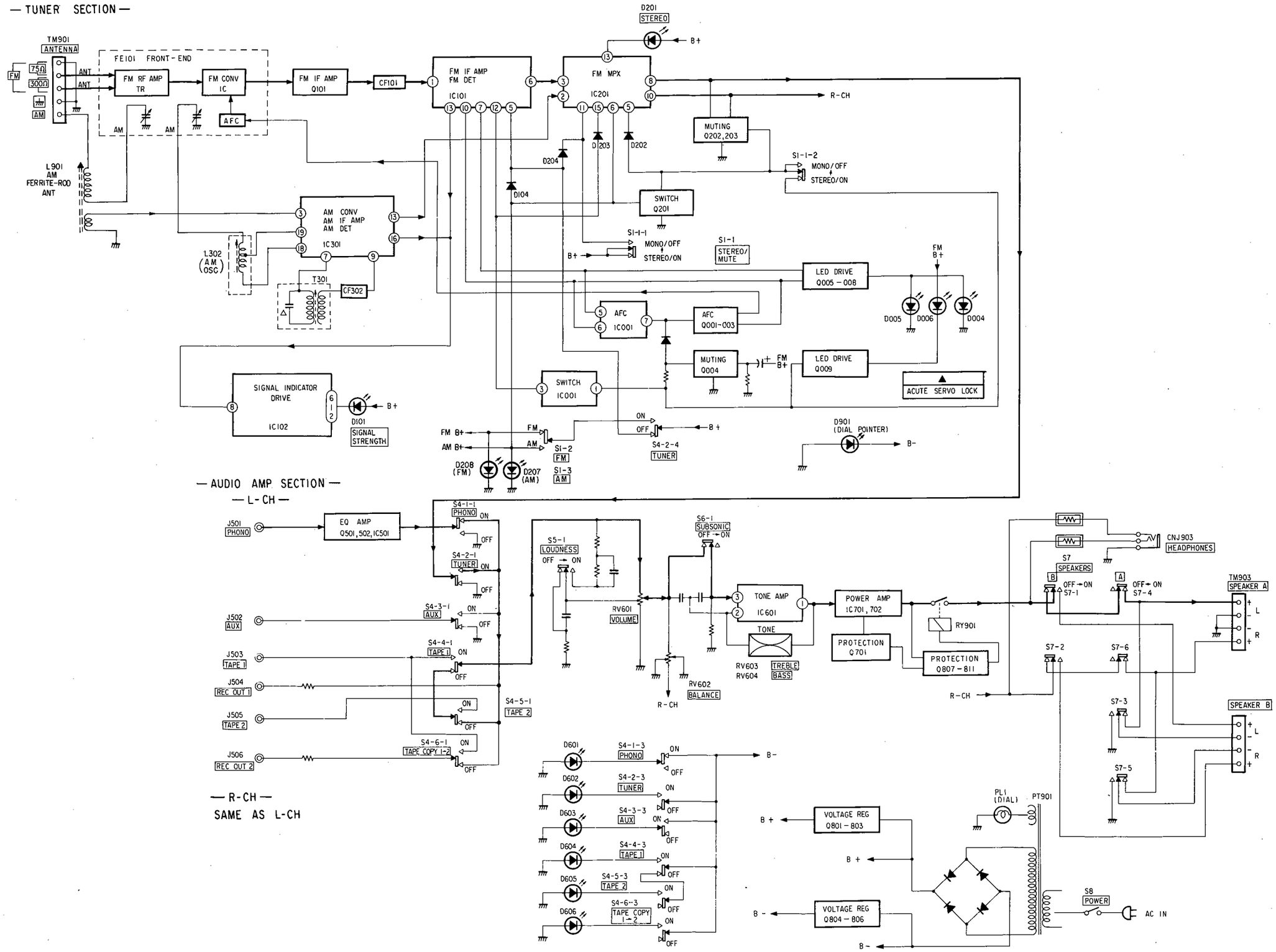


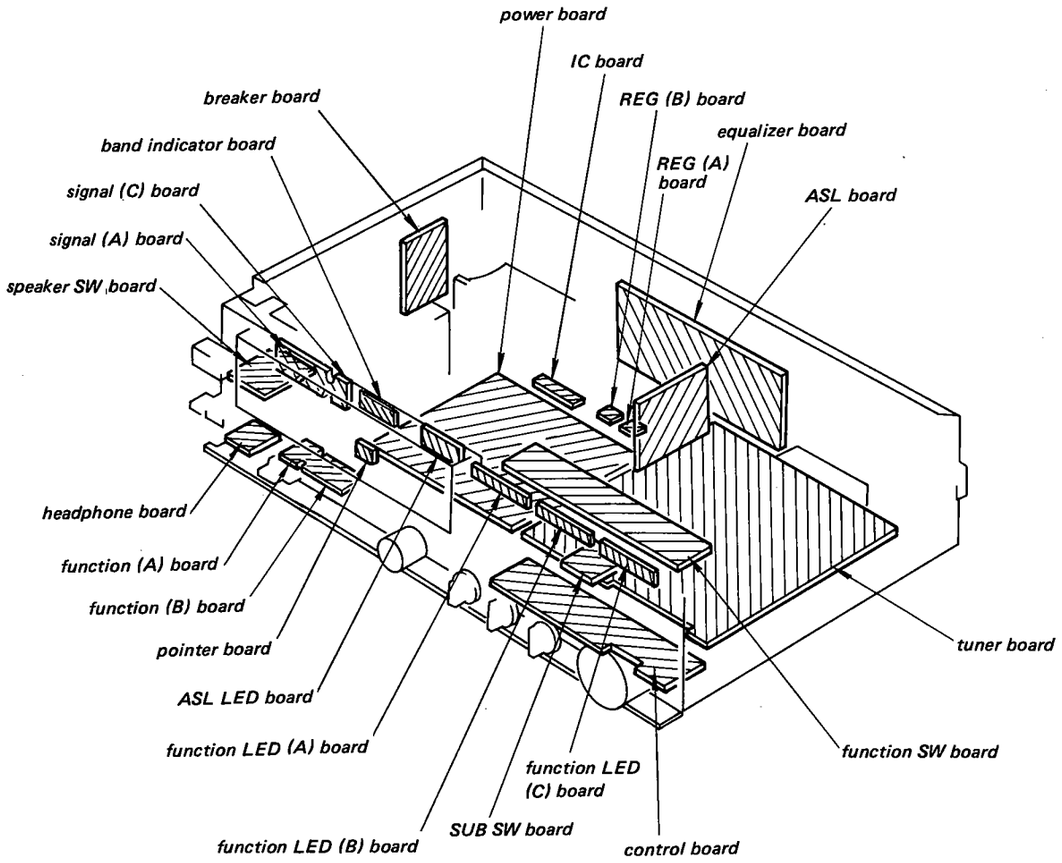
Fig. 6

SECTION 1
OUTLINE

1. BLOCK DIAGRAM



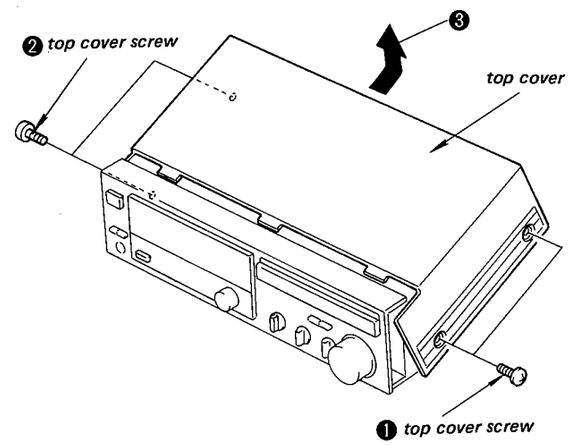
1-2. BOARDS LOCATION



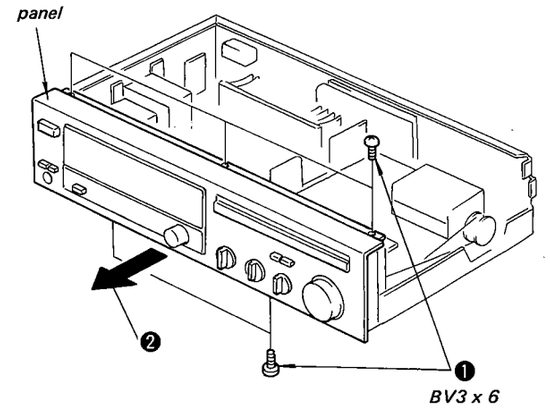
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

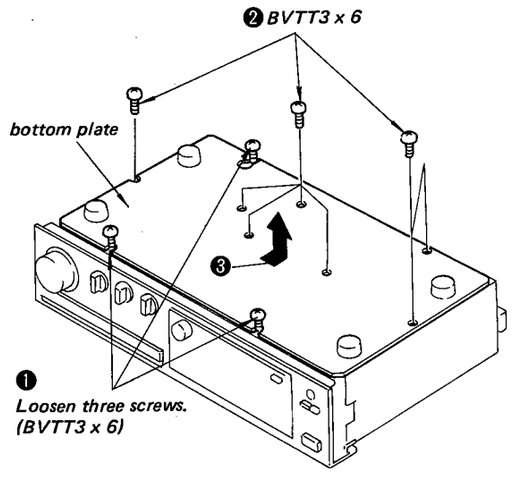
TOP COVER



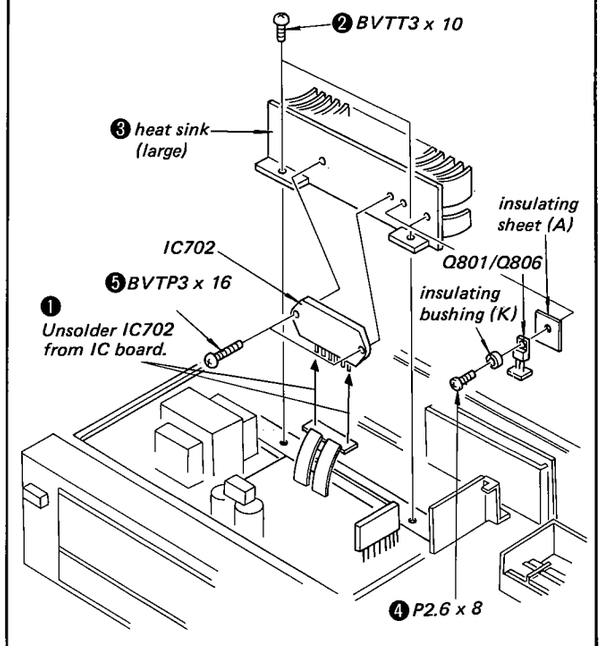
PANEL



BOTTOM PLATE

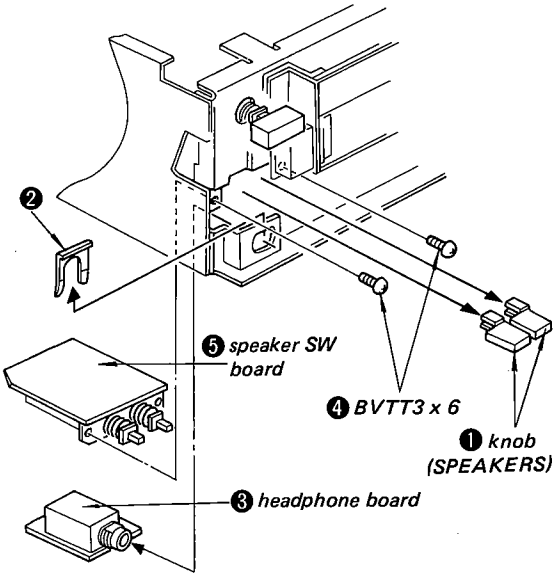


Q801/Q806/IC702



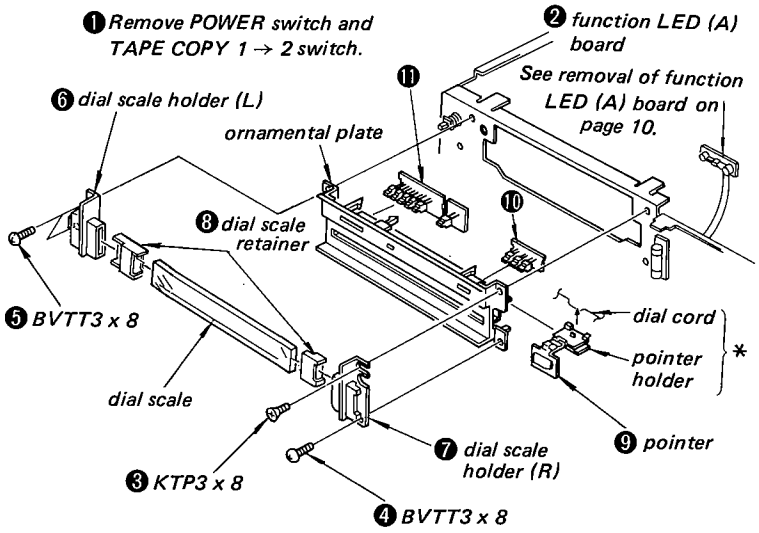
HEADPHONE BOARD/SPEAKER SW BOARD

headphone board: ❶ to ❸
speaker SW board: ❶ to ❺



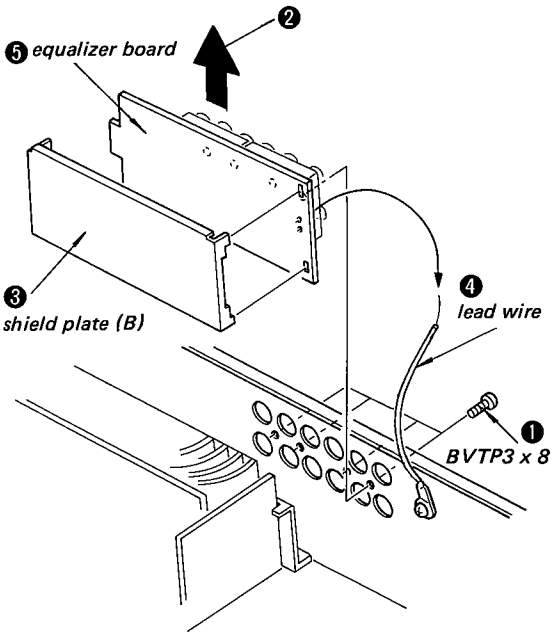
DIAL SCALE/POINTER/ORNAMENTAL PLATE

dial scale: ❶ to ❽
pointer: ❶ to ❾
ornamental plate: ❶ to ⓫



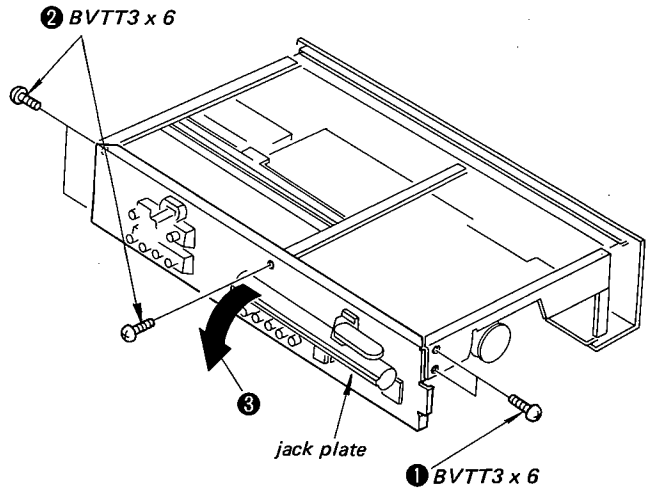
*Note: Remove parts marked * only when replacing the pointer.*

EQUALIZER BOARD



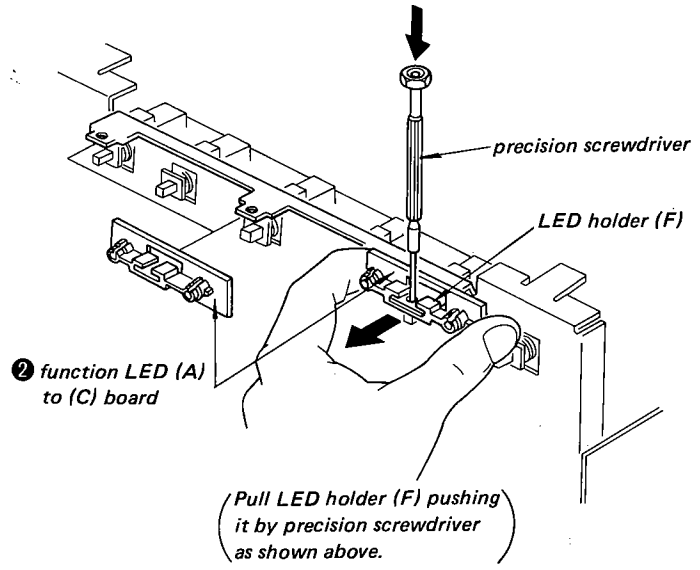
JACK PLATE

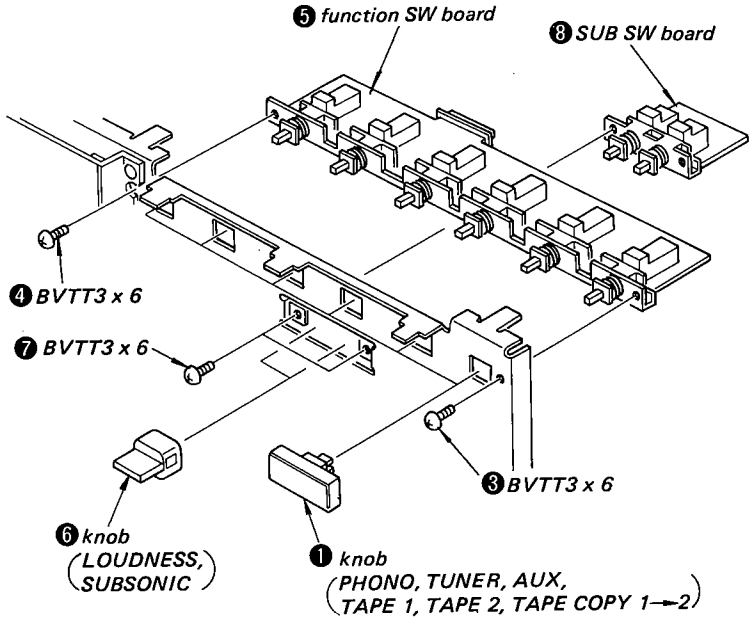
Before removing the jack plate, remove the bottom plate.



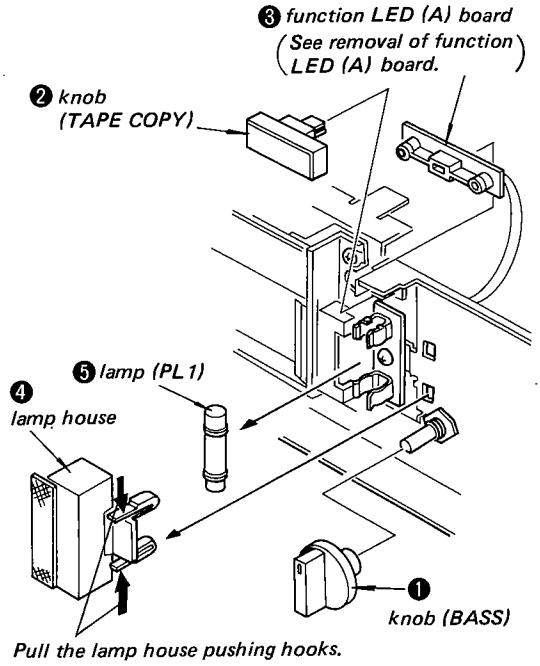
FUNCTION LED (A) to (C) BOARD/ FUNCTION SW BOARD/SUB SW BOARD

function LED (A) to (C) board: ❶ to ❷
function SW board: ❶ to ❺
SUB SW board: ❻ to ❽

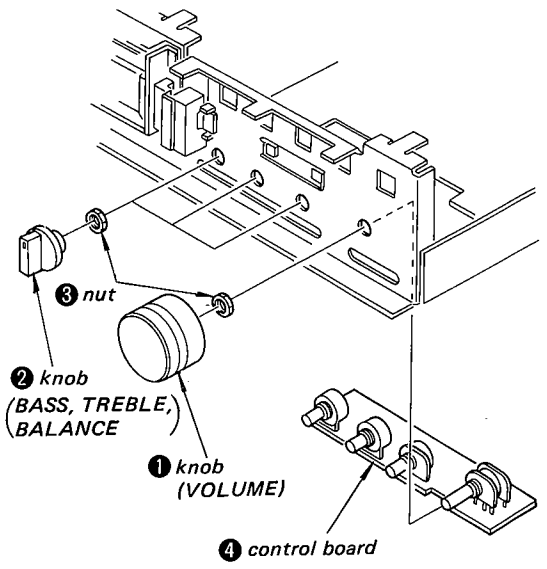

precision screwdriver
LED holder (F)
❷ function LED (A) to (C) board
(Pull LED holder (F) pushing it by precision screwdriver as shown above.)


❺ function SW board
❽ SUB SW board
❹ BVTT3 x 6
❼ BVTT3 x 6
❸ BVTT3 x 6
❻ knob (LOUDNESS, SUBSONIC)
❶ knob (PHONO, TUNER, AUX, TAPE 1, TAPE 2, TAPE COPY 1→2)

LAMP (PL1)

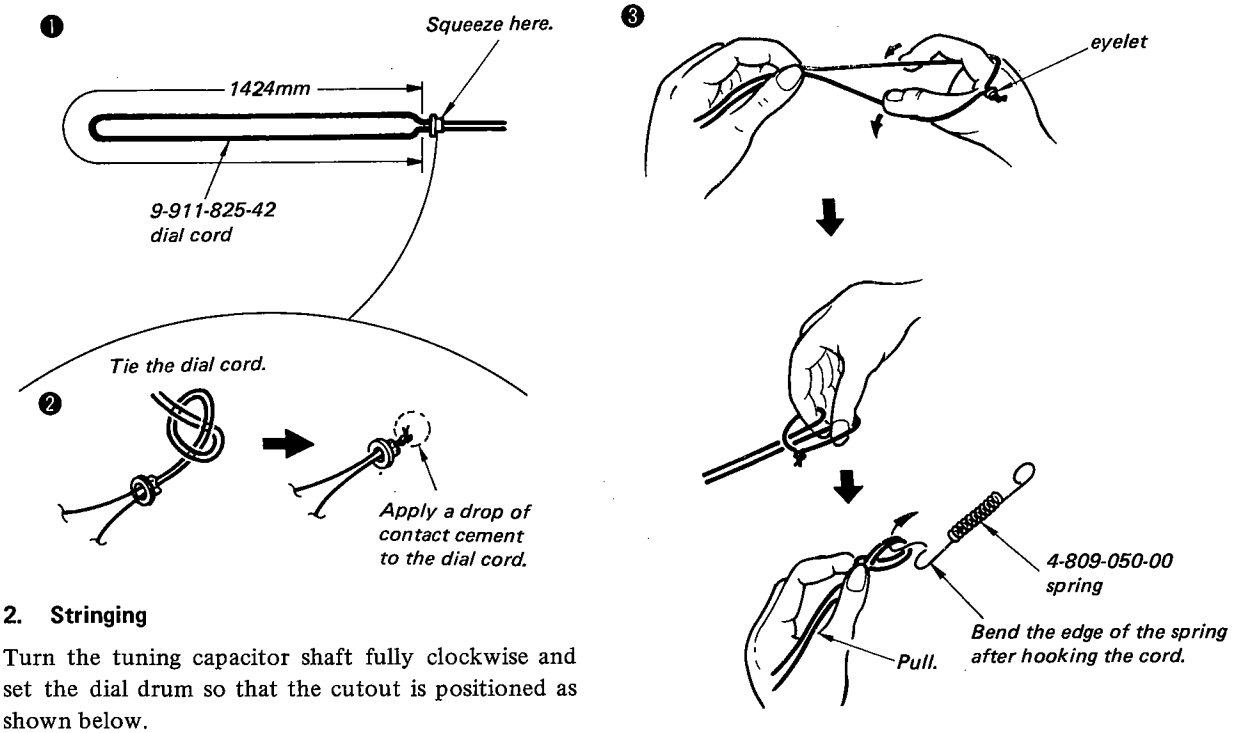

❸ function LED (A) board (See removal of function LED (A) board.)
❷ knob (TAPE COPY)
❺ lamp (PL1)
❹ lamp house
❶ knob (BASS)
Pull the lamp house pushing hooks.

CONTROL BOARD



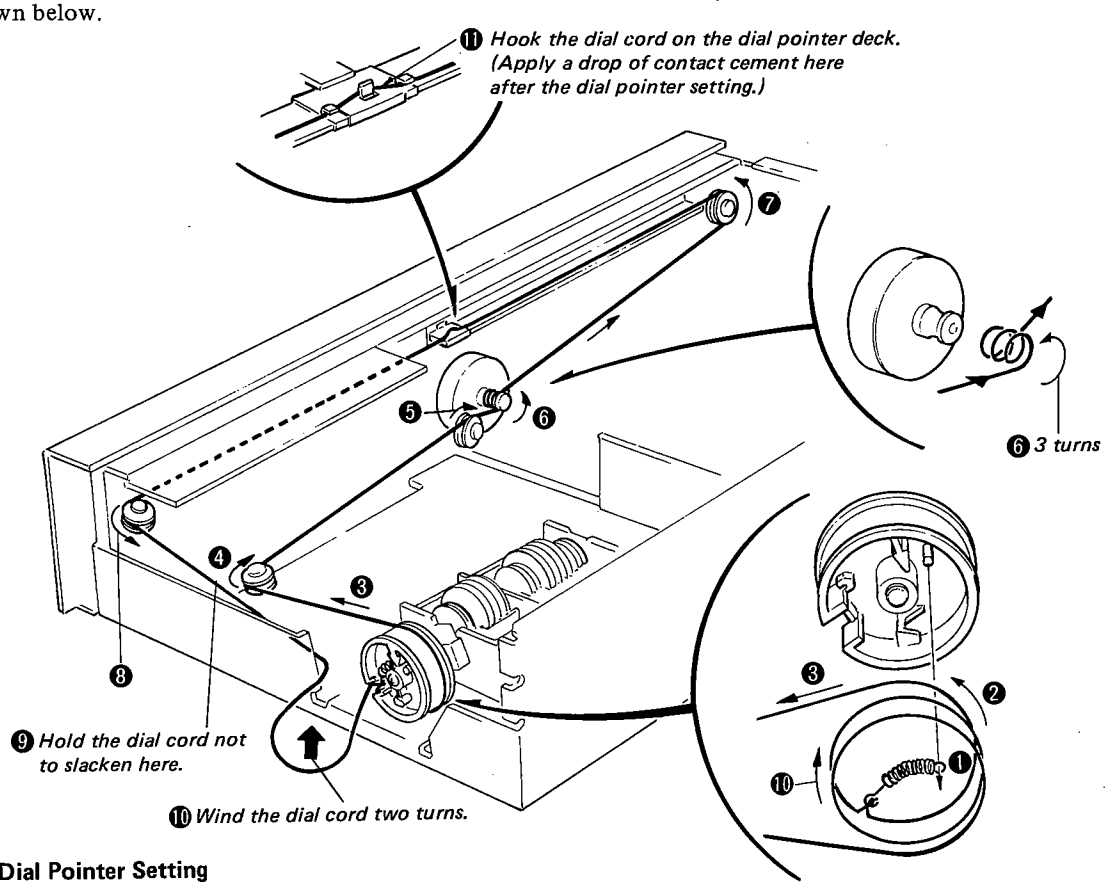
DIAL CORD STRINGING

1. Preparation



2. Stringing

Turn the tuning capacitor shaft fully clockwise and set the dial drum so that the cutout is positioned as shown below.



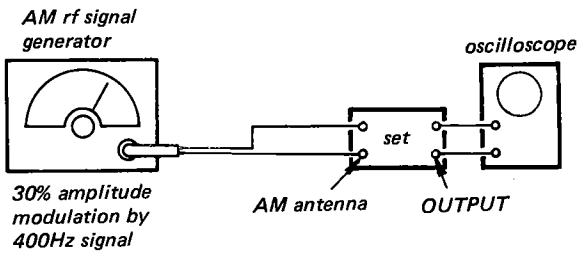
3. Dial Pointer Setting

- Receive the signal (98MHz) from the FM RF SG and set the dial pointer to 98MHz on the dial scale.
- Apply a drop of contact cement to the dial pointer.

MEMO

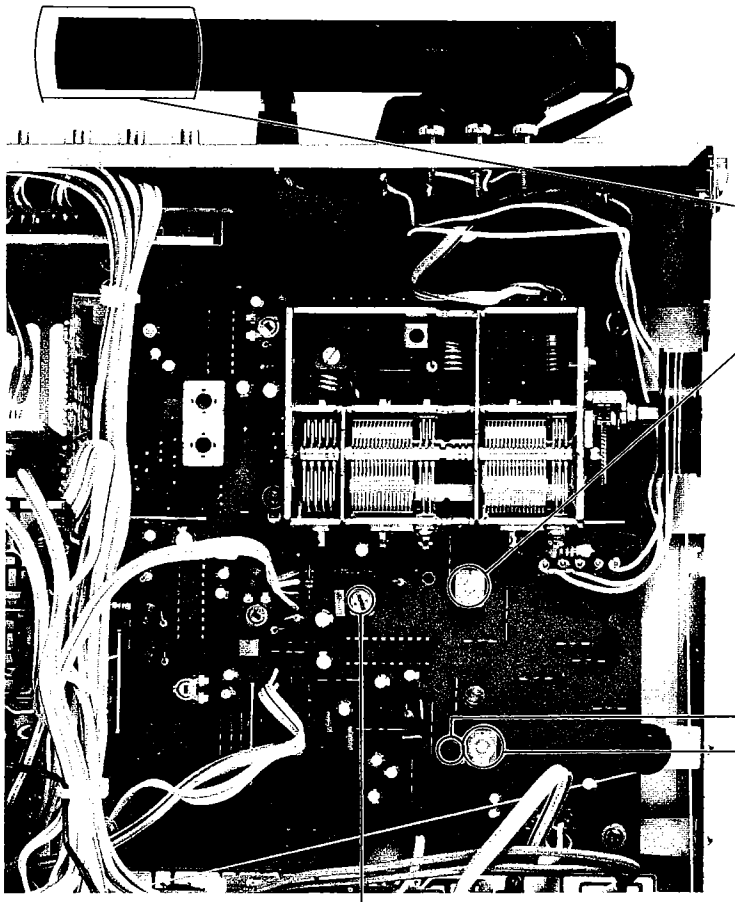
SECTION 3
ADJUSTMENTS

AM SECTION



Output level: as low as possible

- Repeat each adjustment several times for maximum reading on oscilloscope.
- The AM tuning adjustment and the tracking adjustment should be finally done by the trimmer capacitor.

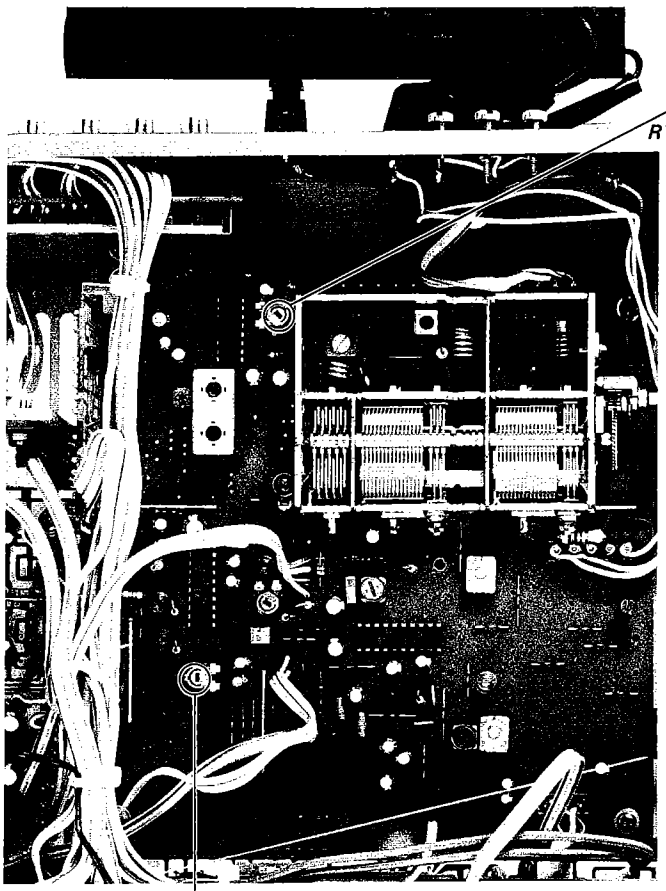


AM TRACKING ADJUSTMENT	
adjustment parts	frequency of the signal generator
L501	600kHz
CT301	1,400kHz

AM TUNING ADJUSTMENT		
Make sure of the dial pointer setting before this adjustment. (Refer to the dial pointer setting on page 11.)		
adjustment parts	dial pointer indication	frequency of the signal generator
L302	600kHz	600kHz
CT302	1,400kHz	1,400kHz

IF ALIGNMENT	
adjustment parts	frequency of the signal generator
T301	1,000kHz

FM SECTION

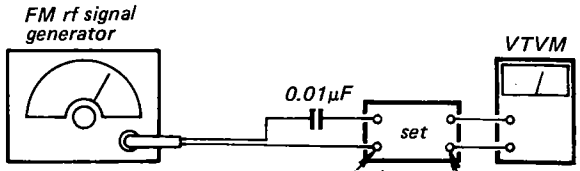


FM Muting Level Adjustment

Setting:

FM MODE/MUTE switch (S1): STEREO/ON

Procedure:



Carrier frequency: *98MHz*
Modulation: *1kHz, 75kHz deviation (100%)*
Output level: *10μV (20dB)*

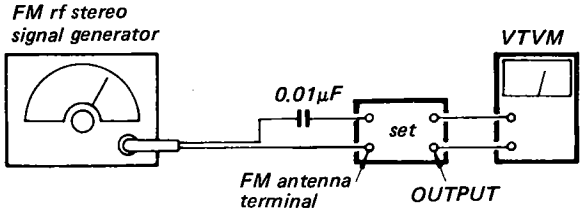
1. Tune the set to 98MHz.
2. Set the output level of the FM rf signal generator to 20dB (10μV).
3. Turn RT101 and stop it just when the VTVM indication suddenly decreases.

FM Stereo Separation Adjustment

Setting:

FM MODE/MUTE switch (S1): STEREO/ON

Procedure:



Carrier frequency: *98MHz*
Output level: *1mV (60dB)*
Mode: *stereo*
Modulation:
Audio (1kHz): *33.75kHz deviation (45%)*
Pilot (19kHz): *7.5kHz deviation (10%)*
Sub-channel (38kHz): *33.75kHz deviation (45%)*

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RT201 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RT201 for minimum reading.

L-CH Stereo Separation: Ⓐ – Ⓑ
R-CH Stereo Separation: Ⓒ – Ⓓ

The separations of both channels should be equal.

GENERAL SECTION

Part No.	Description
2-832-007-00	BUSHING (K), INSULATING
3-480-149-00	CUSHION
3-701-462-00	SCREW, LOCK
3-701-589-00	SCREW, SELF-TAPPING
.....	
3-701-822-00	HOLDER, WIRE
3-703-079-21	LABEL, CAUTION (BACK)
3-703-108-01	SCREW +BV 3X6, S TIGHT
3-703-244-00	BUSHING, CORD
3-703-354-11	SCREW (OS), TOP COVER CLAW
3-703-466-00	SPRING (6600)
3-886-569-00	TUBE, RUBBER
4-809-050-00	SPRING, TENSION
4-812-134-00	RIVET, NYLON, 3.5
♦;4-838-818-00	LEAD, CLAMP INDICATOR
♦;4-844-449-00	LABEL
4-859-586-01	DRUM (165), DIAL
4-861-045-00	LABEL, CAUTION
4-864-307-00	RING
4-866-342-00	JOINT (B), KNOB
4-869-217-00	CLIP, CORD
.....	
4-874-042-00	SHEET (A), INSULATING
4-874-058-41	KNOB, SQUARE (3X14)
4-875-152-00	KNOB, CONTROL
4-875-455-21	COVER (DIA. 20), CAPACITOR
.....	
.....	
♦;4-876-706-00	RETAINER, DIAL SCALE
♦;4-876-707-00	BRACKET, F.E
♦;4-876-708-00	BRACKET (A), PULLEY
♦;4-876-709-00	BRACKET (B), PULLEY
♦;4-876-710-00	BRACKET (C), PULLEY
♦;4-876-711-00	BRACKET (C), PC BOARD
♦;4-876-712-00	BRACKET (B), PC BOARD
4-876-713-00	HOLDER (R), DIAL SCALE
4-876-714-00	HOLDER (L), DIAL SCALE
4-876-715-01	SCALE, DIAL
♦;4-876-716-00	BRACKET (D), PULLEY
4-876-717-00	HOLDER (F), LED
4-876-718-00	HOLDER, POINTER
4-876-719-00	POINTER
4-876-722-01	KNOB (4X10), SQUARE
4-876-722-11	KNOB (4X10), SQUARE
♦;4-876-723-00	RETAINER, PC BOARD

GENERAL SECTION

No.	Part No.	Description
46	♦;4-876-724-00	BRACKET (D), PC BOARD
47	♦;4-876-725-00	HOUSE, LAMP
48	♦;4-876-726-00	PLATE (A), SHIELD
49	4-876-733-01	PLATE, ORNAMENTAL
50	♦;4-876-735-00	BRACKET (A), PC BOARD
51	♦;4-876-736-00	BRACKET, HEAT SINK
52	♦;4-876-737-01	HEAT SINK (LARGE)
53	4-876-741-00	HOLDER (S), LED
54	4-876-743-00	HOLDER (A), LED
55	♦;4-876-744-00	PLATE (B), SHIELD
56	4-876-745-00	TABLE, POINTER
57	♦;4-876-746-00	PLATE (R), SIDE
58	♦;4-876-747-11	(US).....PLATE, JACK
58	♦;4-876-747-41	(Canadian)....PLATE, JACK
59	♦;4-876-749-00	PLATE (L), SIDE
60	.....	
61	♦;4-876-751-00	MARK, A.S.L
62	.....	
63	♦;4-876-753-00	CUSHION
64	♦;4-876-754-01	PANEL, SUB
65	♦;4-876-755-01	PLATE, BOTTOM
66	4-893-523-11	SCREW 3X8
67	7-621-259-55	SCREW +P 2.6X8
68	7-623-508-01	LUG, 3
69	7-623-616-01	EYELET, 2X3
70	.....	
71	7-685-246-24	SCREW +KTP 3X8 TYPE2 SLIT
72	7-685-550-24	SCREW +BVTP 3X16 TYPE2 SLIT
73	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
74	7-685-870-01	SCREW +BVTT 3X5 (S)
75	7-685-871-01	SCREW +BVTT 3X6 (S)
76	7-685-872-01	SCREW +BVTT 3X8 (S)
77	7-685-880-01	SCREW +BVTT 4X6 (S)
78	9-911-815-01	CUSHION (H)
79	9-911-825-42	STRING, 0.5MM WHITE
80	9-911-841-XX	STOPPER
81	9-911-843-XX	CUSHION
82	A-4322-353-A	PANEL ASSY
83	.....	
84	.....	
85	.....	
86	.....	
87	.....	
88	.....	
89	X-4864-303-0	FOOT ASSY
90	X-4864-705-0	PULLEY ASSY

GENERAL SECTION

No.	Part No.	Description
91	X-4875-101-0	KNOB ASSY, PHONO
92	X-4875-102-0	KNOB ASSY, TUNER
93	X-4875-103-0	KNOB ASSY, AUX
94	X-4875-104-0	KNOB ASSY, TAPE (1)
95	X-4875-105-0	KNOB ASSY, TAPE (2)
96	X-4875-106-0	KNOB ASSY, TAPE COPY
97	X-4875-108-0	KNOB ASSY, POWER
98	X-4875-113-2	KNOB (DIA. 24) (A) ASSY, R
99	X-4876-702-0	KNOB (DIA.40) ASSY, R
100	♦;X-4876-703-0	WHEEL ASSY, TUNING
101	.....	
102	7-685-873-01	SCREW +BVTT 3X10 (S)
103	♦;4-838-926-00	PLATE (A), LUG TERMINAL
104	♦;3-701-946-24	(Canadian)....LAVEL, FUSE
105	4-876-742-00	HOLDER (B), LED
106	3-575-539-21	COVER, TOP

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
121	1-501-184-00	ANTENNA, FEEDER
122	3-701-630-00	BAG, POLYETHYLENE
123	3-783-627-21	MANUAL, INSTRUCTION
124	3-795-192-31	(Canadian)....INSTRUCTION, FRENCH
125	4-864-354-00	SHEET, POLYETHYLENE
126	4-876-761-00	(MADE IN JAPAN)...INDIVIDUAL CARTON
126	4-876-762-00	(MADE IN KOREA)...INDIVIDUAL CARTON
127	4-876-765-00	CUSHION (LEFT), LOWER
128	4-876-766-00	CUSHION (RIGHT), LOWER
129	4-876-767-00	CUSHION (UPPER)
130	3-703-390-01	(US)....INSTRUCTION

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	♦;1-508-809-00	BASE POST (14MM) 2P
502	♦;1-508-831-12	H TYPE BASE POST
503	♦;1-508-832-12	H TYPE BASE POST
504	1-533-051-XX	HOLDER,CYLINDRICAL LAMP
505	⚠;1-551-628-00	CORD, POWER
506	♦;1-535-114-00	TERMINAL
507	♦;1-535-115-00	TERMINAL
508	♦;1-535-116-00	TERMINAL
509	♦;1-535-117-00	TERMINAL
510	♦;1-535-118-00	TERMINAL
511	.....	
512	♦;1-535-141-00	BASE POST 19MM (10MM PITCH) 4P
513	♦;1-535-149-11	WIRE (30.0MM)
514	.....	
515	♦;1-560-060-00	PIN, CONNECTOR 2P
516	.....	
517	♦;1-605-322-00	PC BOARD, IC
518	♦;1-605-323-00	PC BOARD, REG (A)
519	♦;1-605-324-00	PC BOARD, REG (B)
520	.....	
521	♦;1-605-326-00	PC BOARD, SUB SW
522	♦;1-605-327-00	PC BOARD, FUNCTION SW
523	♦;1-605-328-00	PC BOARD, FUNCTION LED (A)
524	♦;1-605-329-00	PC BOARD, FUNCTION LED (B)
525	♦;1-605-330-00	PC BOARD, FUNCTION LED (C)
526	♦;1-605-331-00	PC BOARD, EQUALIZER
527	♦;1-605-332-00	PC BOARD, ASL
528	♦;1-605-333-00	PC BOARD, ASL LED
529	♦;1-605-334-00	PC BOARD, BREAKER
530	♦;1-605-335-00	PC BOARD, SPEAKER
531	♦;1-605-336-00	PC BOARD, HEADPHONE
532	♦;1-605-337-00	PC BOARD, POINTER
533	♦;A-4351-256-A	MOUNTED PCB, TUNER
534	♦;A-4409-477-A	MOUNTED PCB, POWER
535	♦;A-4409-482-A	MOUNTED PCB, SWITCH, CONTROL
536	♦;1-605-177-00	PC BOARD, SIGNAL (A)
537	♦;1-605-179-00	PC BOARD, SIGNAL (C)
538	♦;1-605-180-00	PC BOARD, FUNCTION (A)
539	♦;1-605-181-00	PC BOARD, FUNCTION (B)
540	♦;1-605-182-00	PC BOARD, BAND INDICATOR

C321	1-102-893-00	CERAMIC	18PF (UJ)	5%	50V
C505	1-130-302-00	FILM	0.016MF	5%	100V
C506	1-130-315-00	FILM	0.056MF	5%	100V
C555	1-130-302-00	FILM	0.016MF	5%	100V
C556	1-130-315-00	FILM	0.056MF	5%	100V
C801	⚠;1-125-157-00	ELECT(BLOCK)	6800MF	20%	42V
C802	⚠;1-125-157-00	ELECT(BLOCK)	6800MF	20%	42V
CB901	⚠;1-532-521-11	CIRCUIT BREAKER			

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· MMH : mH, UH : μH

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ELECTRICAL PARTS

f.No.	Part No.	Description
CF101	1-527-277-91	FILTER, SOLID STATE
CF301	1-527-599-00	FILTER, MECHANICAL
CNJ901⚠	1-561-161-00	OUTLET, AC (2-GANG)
CNJ903	1-507-669-00	JACK
CP801⚠	1-102-394-00	CERAMIC 0.01MF+0.01MF 250V
CP802⚠	1-102-394-00	CERAMIC 0.01MF+0.01MF 250V
CP901⚠	1-161-749-00	CERAMIC 10000PF 125V
CT301	1-141-179-12	CAP, TRIMMER
CT302	1-141-179-12	CAP, TRIMMER
D001	8-719-912-00	DIODE MV-12N
D002	8-719-815-55	DIODE 1S1555
D003	8-719-815-55	DIODE 1S1555
D004	8-719-901-52	DIODE SLP151B
D005	8-719-901-52	DIODE SLP151B
D006	8-719-902-51	DIODE SLP251B
D101	8-719-925-26	DIODE (LED BLOCK) SLP-252B
D102	8-719-422-21	DIODE 1T22AM
D104	8-719-815-55	DIODE 1S1555
D201	8-719-901-52	DIODE SLP151B
D202	8-719-815-55	DIODE 1S1555
D203	8-719-815-55	DIODE 1S1555
D204	8-719-815-55	DIODE 1S1555
D205	8-719-815-55	DIODE 1S1555
D206	8-719-815-55	DIODE 1S1555
D207	8-719-902-51	DIODE SLP251B
D208	8-719-902-51	DIODE SLP251B
D301	8-719-815-55	DIODE 1S1555
D302	8-719-815-55	DIODE 1S1555
D303	8-719-815-55	DIODE 1S1555
D601	8-719-930-95	DIODE GL-3NG95
D602	8-719-930-95	DIODE GL-3NG95
D603	8-719-930-95	DIODE GL-3NG95
D604	8-719-930-95	DIODE GL-3NG95
D605	8-719-930-95	DIODE GL-3NG95
D606	8-719-903-05	DIODE GL-3PR5
D701	8-719-815-55	DIODE 1S1555
D751	8-719-815-55	DIODE 1S1555
D801⚠	8-719-504-10	DIODE S4VB10
D802	8-719-936-05	DIODE EQA01-05R
D803	8-719-947-10	DIODE 1S2471VE
D804	8-719-815-55	DIODE 1S1555
D901	8-719-919-24	DIODE GL-9HY22
FE101	1-463-368-00	FRONT END
IC001	8-759-145-58	IC UPC4558C
IC101	8-759-812-35	IC LA1235
IC102	8-759-904-89	IC TL489CP
IC201	8-759-833-90	IC LA3390
IC301	8-759-812-45	IC LA1245

ELECTRICAL PARTS

Ref.No.	Part No.	Description
IC501	8-759-145-57	IC UPC4557C
IC601	8-759-745-60	IC NJM4560D
IC701	8-759-830-42	IC STK-3042
IC702	8-759-822-30	IC STK-2230ST
J501	1-507-747-00	JACK, PIN 6P
J502	1-507-747-00	JACK, PIN 6P
J503	1-507-747-00	JACK, PIN 6P
J504	1-507-637-21	JACK, PIN 6P
J505	1-507-637-21	JACK, PIN 6P
J506	1-507-637-21	JACK, PIN 6P
J551	1-507-747-00	JACK, PIN 6P
J552	1-507-747-00	JACK, PIN 6P
J553	1-507-747-00	JACK, PIN 6P
J554	1-507-637-21	JACK, PIN 6P
J555	1-507-637-21	JACK, PIN 6P
J556	1-507-637-21	JACK, PIN 6P
L301	1-407-169-XX	MICRO INDUCTOR 100UH
L302	1-405-953-00	COIL (OSC)
L701 ♦	1-420-872-00	COIL, AIRE CORE
L751 ♦	1-420-872-00	COIL, AIRE CORE
L901	1-401-912-00	ANTENNA, FERRITE-ROD (MW)
PL1	1-518-070-41	LAMP
PT901⚠	1-447-029-00	TRANSFORMER, POWER
Q001	8-729-663-47	TRANSISTOR 2SC1364
Q002	8-729-663-47	TRANSISTOR 2SC1364
Q003	8-729-663-47	TRANSISTOR 2SC1364
Q004	8-729-663-47	TRANSISTOR 2SC1364
Q005	8-729-663-47	TRANSISTOR 2SC1364
Q006	8-729-663-47	TRANSISTOR 2SC1364
Q007	8-729-201-52	TRANSISTOR 2SA1015
Q008	8-729-201-52	TRANSISTOR 2SA1015
Q009	8-729-201-52	TRANSISTOR 2SA1015
Q101	8-729-883-92	TRANSISTOR 2SC2839
Q201	8-729-663-47	TRANSISTOR 2SC1364
Q202	8-729-663-47	TRANSISTOR 2SC1364
Q203	8-729-663-47	TRANSISTOR 2SC1364
Q501	8-729-140-02	TRANSISTOR 2SC1400
Q502	8-729-140-02	TRANSISTOR 2SC1400
Q551	8-729-140-02	TRANSISTOR 2SC1400
Q552	8-729-140-02	TRANSISTOR 2SC1400
Q701	8-729-204-91	TRANSISTOR 2SA1049
Q751	8-729-204-91	TRANSISTOR 2SA1049
Q801	8-729-217-33	TRANSISTOR 2SC1173
Q802	8-729-634-04	TRANSISTOR 2SK34-D
Q803	8-729-663-47	TRANSISTOR 2SC1364
Q804	8-729-201-52	TRANSISTOR 2SA1015
Q805	8-729-634-04	TRANSISTOR 2SK34-D
Q806	8-729-247-33	TRANSISTOR 2SA473

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q807	8-729-663-47	TRANSISTOR 2SC1364
Q808	8-729-663-47	TRANSISTOR 2SC1364
Q809	8-729-663-47	TRANSISTOR 2SC1364
Q810	8-729-663-47	TRANSISTOR 2SC1364
Q811	8-729-663-47	TRANSISTOR 2SC1364
R105⚠	1-247-109-00	CARBON 120 5% 1/4W F
R114⚠	1-247-109-00	CARBON 120 5% 1/4W F
R126⚠	1-247-083-00	CARBON 10 5% 1/4W F
R201⚠	1-247-109-00	CARBON 120 5% 1/4W F
R302⚠	1-247-115-00	CARBON 220 5% 1/4W F
R308⚠	1-247-109-00	CARBON 120 5% 1/4W F
R314	1-202-593-00	SOLID 6.8K 20% 1/2W
R706⚠	1-212-982-00	FUSIBLE 100 5% 1/2W F
R707⚠	1-247-127-00	CARBON 680 5% 1/4W F
R710⚠	1-247-192-00	CARBON 10 5% 1/2W F
R711⚠	1-247-188-00	CARBON 4.7 5% 1/2W F
R712⚠	1-247-232-00	CARBON 470 5% 1/2W F
R713⚠	1-212-982-00	FUSIBLE 100 5% 1/2W F
R757⚠	1-247-127-00	CARBON 680 5% 1/4W F
R760⚠	1-247-192-00	CARBON 10 5% 1/2W F
R761⚠	1-247-188-00	CARBON 4.7 5% 1/2W F
R762⚠	1-247-232-00	CARBON 470 5% 1/2W F
R801⚠	1-217-305-00	WIREWOUND 39 10% 5W F
R802⚠	1-207-913-00	WIREWOUND 120 10% 2W F
R816⚠	1-213-137-00	METAL 330 5% 1W F
R817⚠	1-217-399-00	FUSIBLE 100 5% 1/4W F
R901⚠	1-202-723-00	SOLID 2.2M 10% 1/2W
RT101	1-226-237-00	RES, ADJ, CARBON 20K
RT201	1-226-237-00	RES, ADJ, CARBON 20K
RT202	1-226-236-00	RES, ADJ, CARBON 10K
RT701	1-226-239-00	RES, ADJ, CARBON 100K
RT751	1-226-239-00	RES, ADJ, CARBON 100K
RV601	1-228-319-00	RES, VAR, CARBON 100K/100K
RV602	1-228-273-00	RES, VAR, CARBON 250K/250K
RV603	1-228-321-00	RES, VAR, CARBON 100K/100K
RV604	1-228-320-00	RES, VAR, CARBON 100K/100K
RV651	1-228-319-00	RES, VAR, CARBON 100K/100K
RV653	1-228-321-00	RES, VAR, CARBON 100K/100K
RV654	1-228-320-00	RES, VAR, CARBON 100K/100K
RY901	1-515-405-00	RELAY
S1	1-553-776-00	SWITCH, PUSH (3 KEY)
S4	1-553-777-00	SWITCH, PUSH (6 KEY)
S5	1-553-775-00	SWITCH, PUSH (2 KEY)
S6	1-553-775-00	SWITCH, PUSH (2 KEY)
S7	1-553-761-00	SWITCH, PUSH (2 KEY)
S8 ⚠	1-553-319-00	SWITCH, PUSH (AC POWER)

ELECTRICAL PARTS

Ref.No.	Part No.	Description
T101	1-404-170-00	TRANSFORMER, IFT
T301	1-409-348-00	COIL, MECHANICAL FILTER
TM901	1-536-663-00	TERMINAL BOARD (ANTENNA)
TM902	1-535-132-00	TERMINAL
TM903	1-536-662-00	TERMINAL BOARD (SPEAKER)

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ELECTROLYTIC CAPACITORS

→ : Use the high voltage rated one.

CAP. (μF)	RATING 6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.	50 VOLT. PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-415-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	–	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	–
3300	1-121-661-00	1-123-075-00	1-123-071-00	–	–	–

CAP. (μF)	100 VOLT. PART No.	160 VOLT. PART No.	250 VOLT. PART No.	350 VOLT. PART No.
0.47	–	–	–	–
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	–	1-123-028-00
3.3	1-121-995-00	–	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	–	–
47	1-123-251-00	1-121-919-00	–	–
100	1-123-084-00	–	–	–

CERAMIC CAPACITORS

CAP. (pF)	RATING 50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

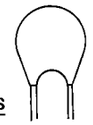
CERAMIC (SEMICONDUCTOR) CAPACITORS

→ : Use the high voltage rated one.

CAP. (μF)	RATING 25 VOLT. PART No.	50 VOLT. PART No.	CAP. (μF)	25 VOLT. PART No.	50 VOLT. PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS

CAP. (μF)	RATING 50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				



TANTALUM CAPACITORS

→ : Use the high voltage rated one.

CAP. (μF)	RATING 3.15 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	–	–	1-131-418-00	–	1-131-413-00	→	1-131-408-00
1.5	–	1-131-421-00	–	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	–
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	–			
68	1-131-394-00	1-131-388-00	–	–			
100	1-131-395-00	–	–	–			

TANTALUM CAPACITORS

CAP. (μF)	RATING 3 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	35 VOLT. PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	1-131-279-00
0.47			1-131-169-00	–	1-131-264-00	1-131-280-00
0.68			–	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	–	1-131-266-00	1-131-282-00
1.5		1-131-250-00	–	–	1-131-267-00	1-131-283-00
2.2		–	–	1-131-259-00	1-131-268-00	1-131-284-00
3.3		–	1-131-255-00	–	1-131-269-00	–
4.7		1-131-251-00	1-131-171-00	–	1-131-270-00	–
6.8		–	–	1-131-260-00	1-131-271-00	–
10	–	–	1-131-256-00	–	1-131-272-00	–
15	–	1-131-252-00	–	1-131-261-00		
22	–	–	1-131-257-00	–		
33	1-131-176-00	1-131-253-00	1-131-173-00	–		
47	1-131-288-00	1-131-174-00	–	–		
100	1-131-177-00					

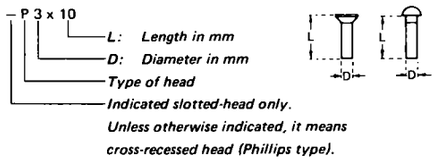
STR-VX3

1/4 WATT CARBON RESISTORS

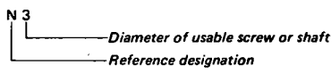
Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
		SCREWS	
		pan-head screw	binding-head (B) screw for replacement
WH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
P		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
W PW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
		round-head screw	binding-head (B) screw for replacement
		flat-countersunk-head screw	
K		oval-countersunk-head screw	
		binding-head screw	
		truss-head screw	binding-head (B) screw for replacement
		flat-fillister-head screw	
		fillister-head screw	
		braizer-head screw	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

9-950-720-11

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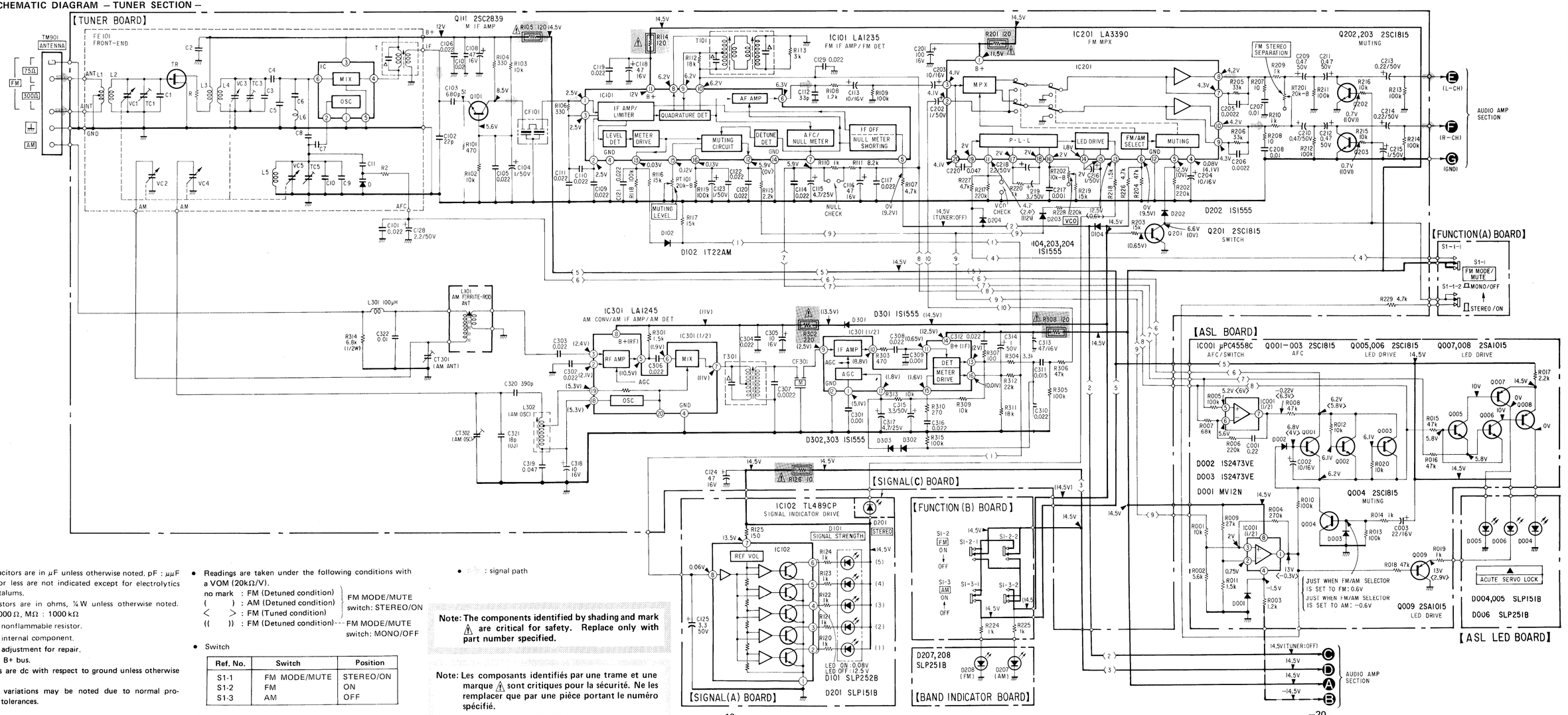
4-1. SCHEMATIC DIAGRAM – TUNER SECTION –



Note:

- All capacitors are in μF unless otherwise noted. pF : μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted.
  kΩ : 1000 Ω, MΩ : 1000 kΩ
- : nonflammable resistor.
- △ : internal component.
- : adjustment for repair.
- ——: B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.

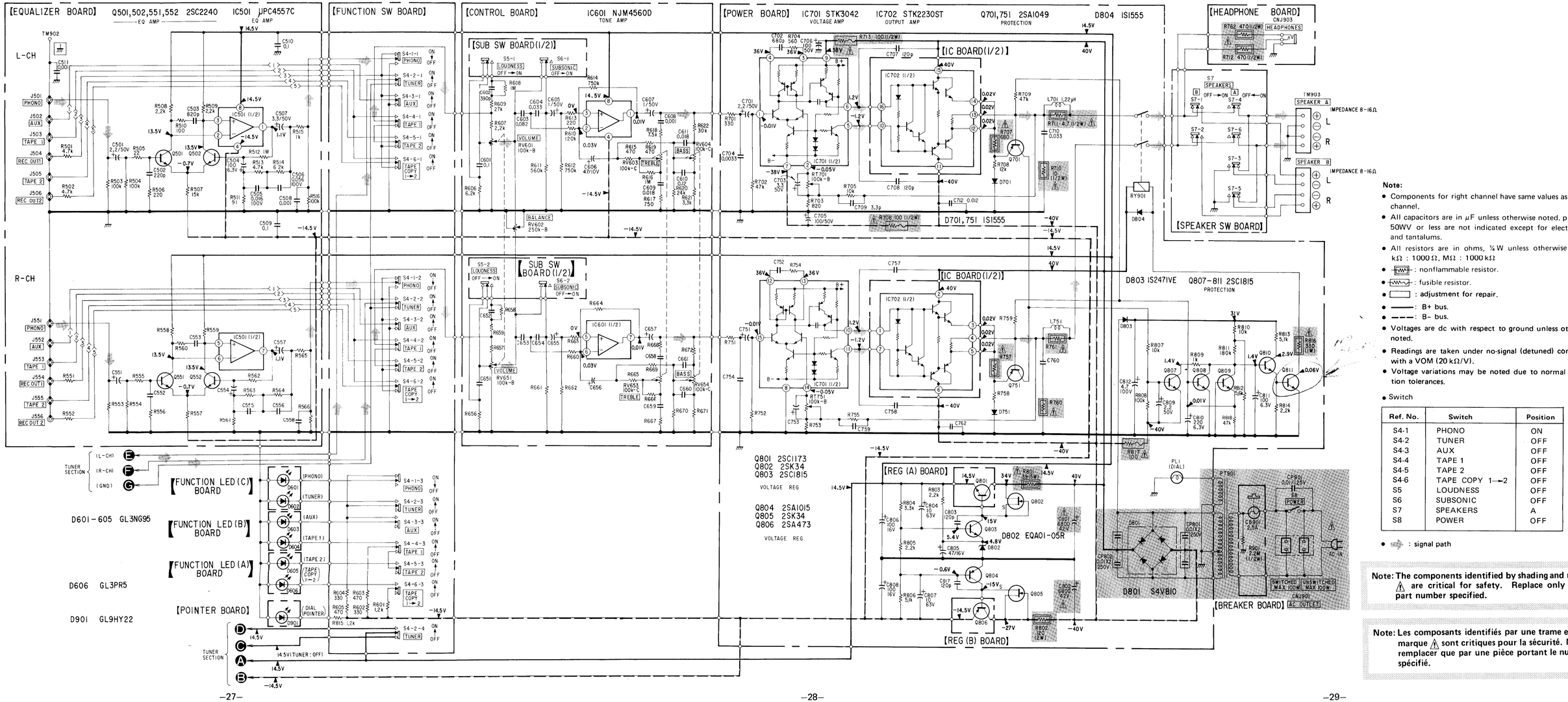
- Readings are taken under the following conditions with a VOM (20kΩ/V).
  - no mark : FM (Detuned condition) — FM MODE/MUTE switch: STEREO/ON
  - ( ) : AM (Detuned condition) — FM MODE/MUTE switch: STEREO/ON
  - < > : FM (Tuned condition) — FM MODE/MUTE switch: STEREO/ON
  - (( )) : FM (Detuned condition) — FM MODE/MUTE switch: MONO/OFF
- Switch

Ref. No.	Switch	Position
S1-1	FM MODE/MUTE	STEREO/ON
S1-2	FM	ON
S1-3	AM	OFF

- : signal path

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



Note:

- Components for right channel have same values as for left channel.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼ W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- : nonflammable resistor.
- : fusible resistor.
- : adjustment for repair.
- : B+ bus.
- : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (20 kΩ/V).
- Voltage variations may be noted due to normal production tolerances.

- Switch

Ref. No.	Switch	Position
S4-1	PHONO	ON
S4-2	TUNER	OFF
S4-3	AUX	OFF
S4-4	TAPE 1	OFF
S4-5	TAPE 2	OFF
S4-6	TAPE COPY 1→2	OFF
S5	LOUDNESS	OFF
S6	SUBSONIC	OFF
S7	SPEAKERS	A
S8	POWER	OFF

- : signal path

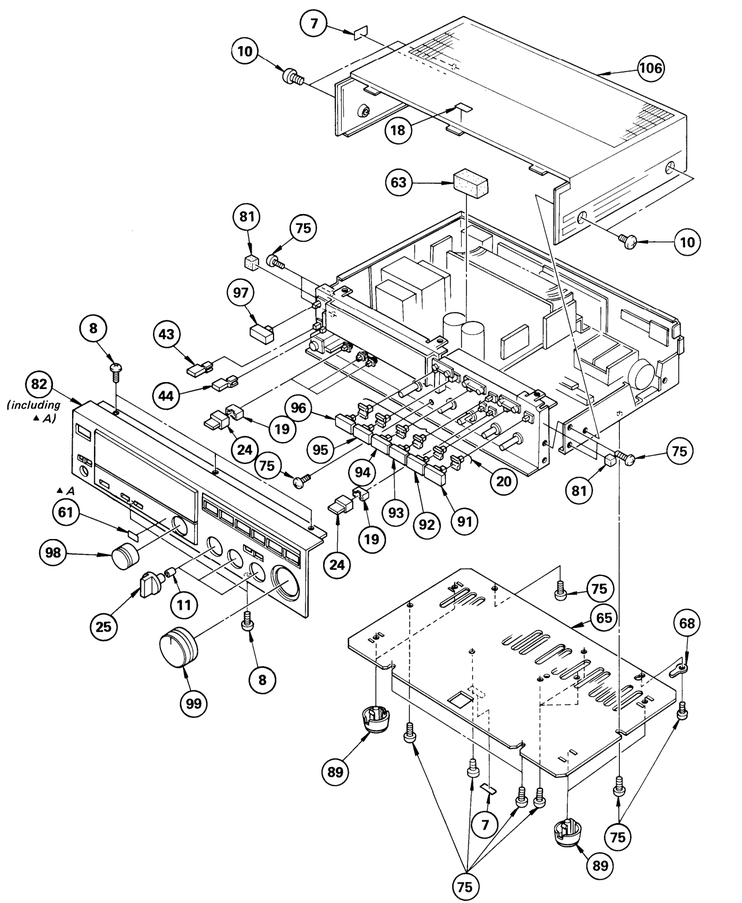
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

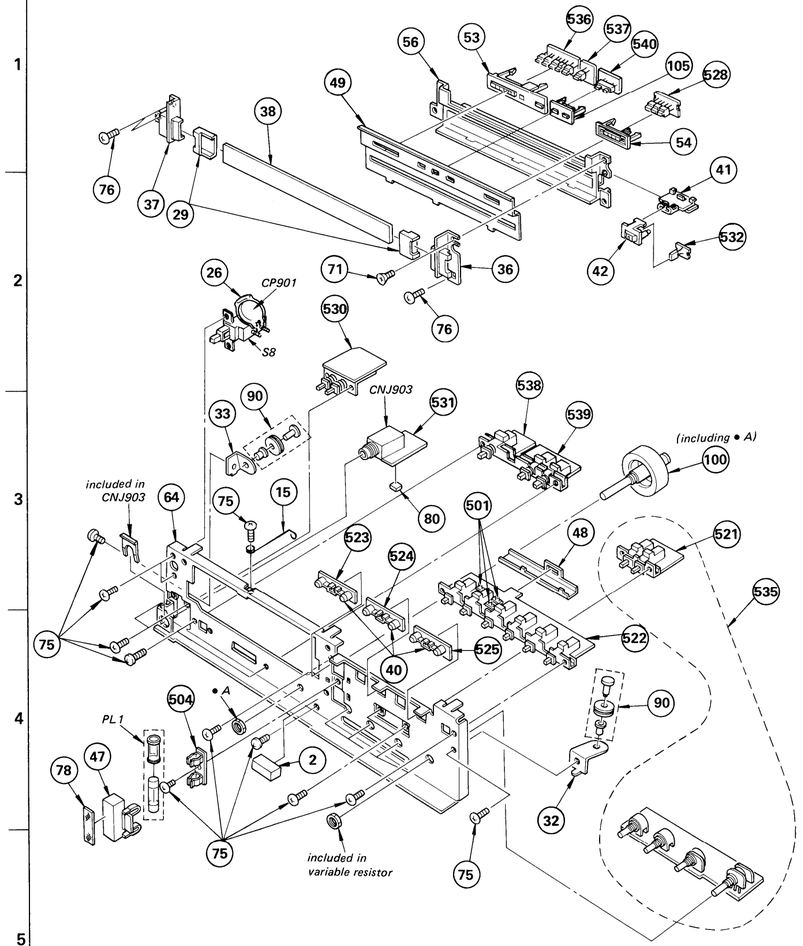
SECTION 5
EXPLODED VIEWS AND PARTS LIST

STR-VX3 STR-VX3

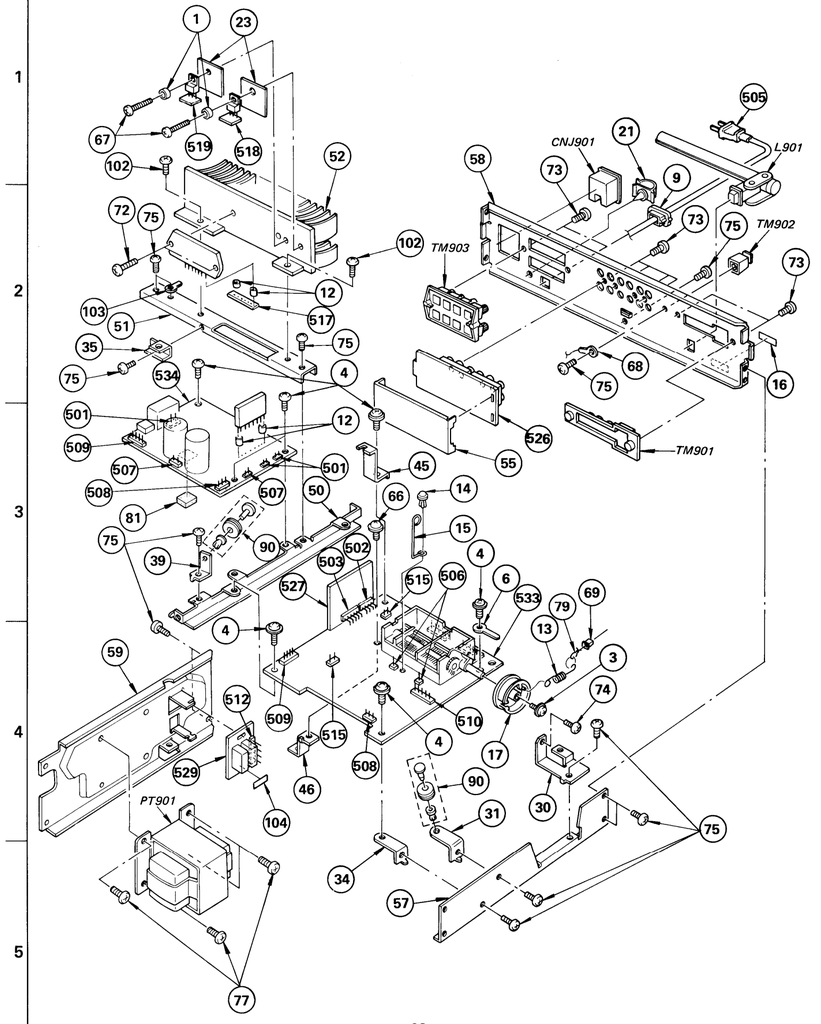
5-1.



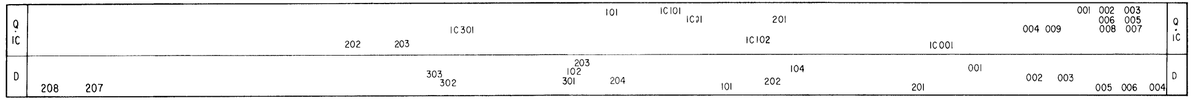
5-2.

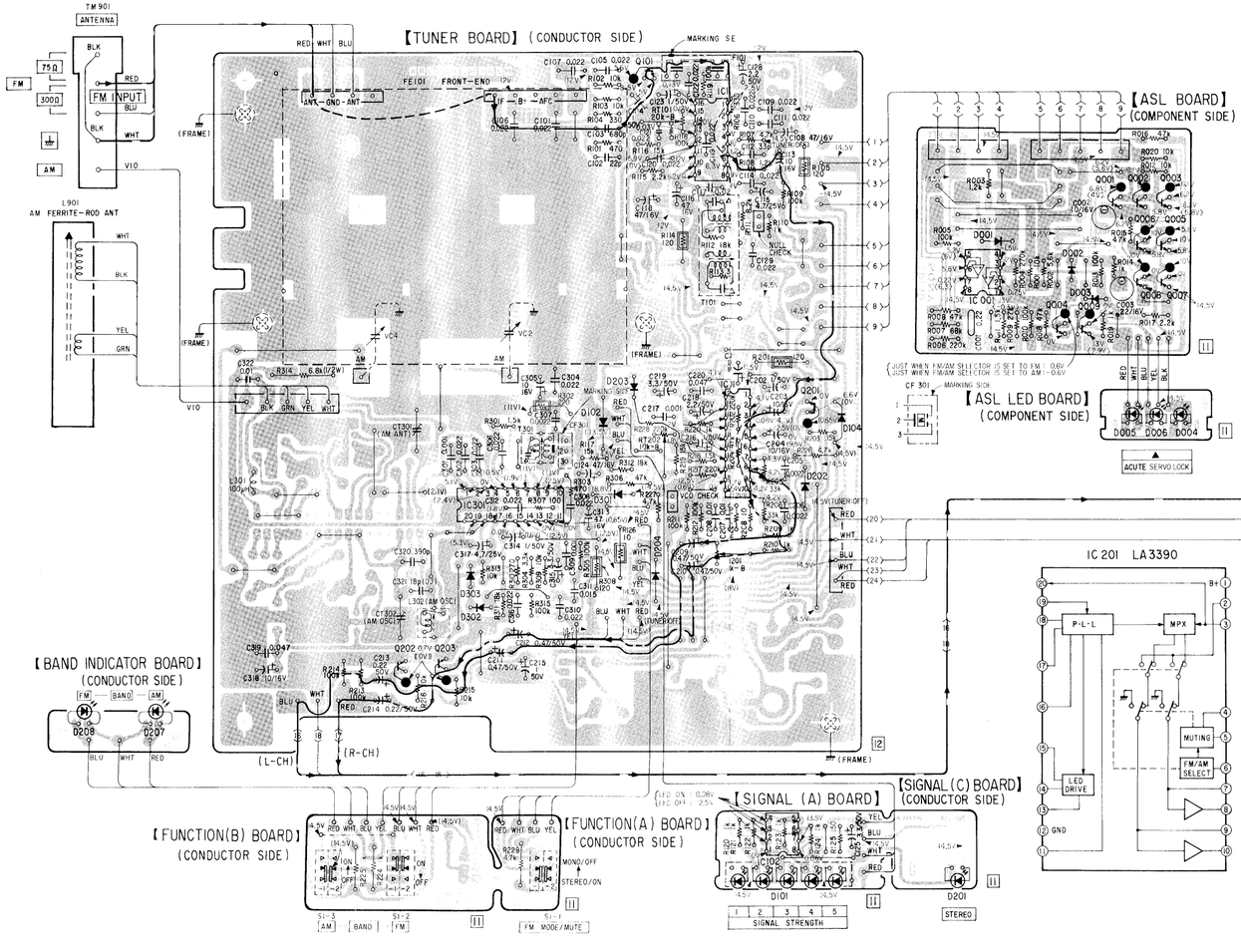


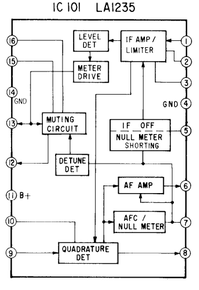
5-3.

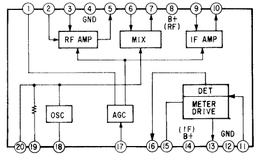


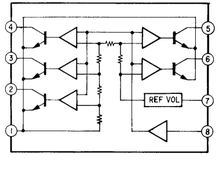
4-2. MOUNTING DIAGRAM — TUNER SECTION —











Note:

- ⊢: indicates side identified with part number.
- : B+ pattern
- : signal path
- : L-CH signal path
- : R-CH signal path
- Readings are taken under the following conditions with a VOM (20kΩ/V).
  - no mark : FM (Detuned condition)
  - ( ) : AM (Detuned condition)
  - < > : FM (Tuned condition)
  - (( )) : FM (Detuned condition)

  } FM MODE/MUTE switch: STEREO/ON

  } FM MODE/MUTE switch: MONO/OFF

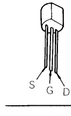
Semiconductor Lead Layouts

2SA473
2SC1173

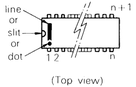
2SA1015
2SC1364
2SC1400
2SC1815
2SC2240

2SA1049
2SC2839

2SK34

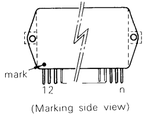


LA1235
LA1245
LA3390
NJM4560D
TL489CP
UPC4557C
UPC4558C



(Top view)

STK2230ST
STK3042

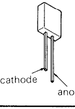


(Marking side view)

1T22AM
1S1555
1S2471VE
1S2473VE
EQA01-05R

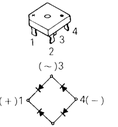
GL3NG95
GL3PR5

GL9HY22

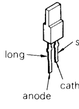


MV12N

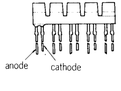
S4VB10



SLP151B
SLP251B

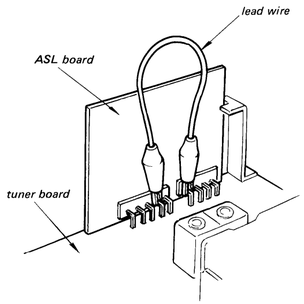


SLP252B



| | | |

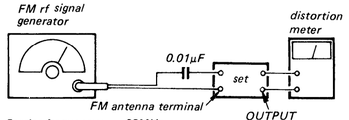
HOW TO TURN ASL OFF:
1. FM MODE/MUTE switch: MONO/OFF
2. Connect a lead wire as shown below.



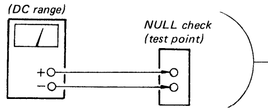
FM Discriminator Alignment

Turn ASL off. (See "How to turn ASL off" on page 15.)

Procedure:

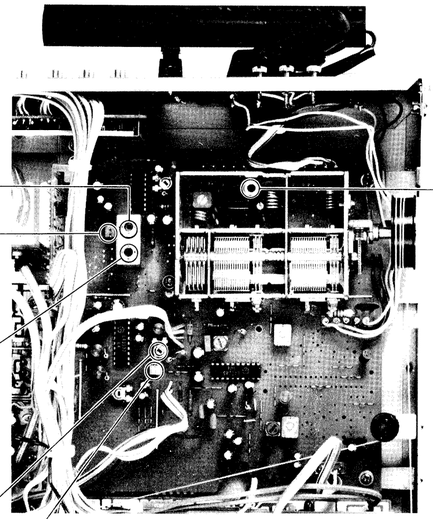


Carrier frequency: 98MHz
Output level: 1mV (60dB)
Modulation(100%): 1kHz, 75kHz deviation
Mode: mono



1. Tune the set to 98MHz.
2. Connect a VOM to NULL CHECK (test point) and adjust the primary-side core (red) of T101 for 0V DC reading on the VOM.
3. Adjust the secondary-side core (black) of T101 for a minimum reading on the distortion meter.

Note: Repeat the secondary-side and primary-side adjustments several times.

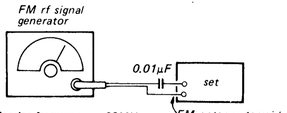


VCO Adjustment

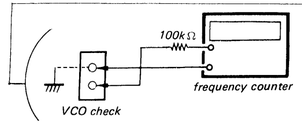
A) Regular Method

Setting:
Turn ASL off. (See "How to turn ASLoff" on page 15.)

Procedure:



Carrier frequency: 98MHz
Modulation: no modulation
Output level: 1mV (60dB)



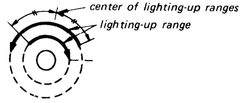
1. Tune the set to 98MHz.
2. Adjust RT202 for 19kHz ± 50Hz on the counter.

B) Simple Method

Setting:
Turn ASL off. (See "How to turn ASL off" on page 15.)

Procedure:

1. Tune the set to the FM stereo broadcasting signal.
2. Turn RT202 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RT202 at the center of the lighting-up range of both turns as shown below.

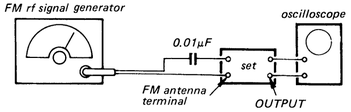


The FM front-end is carefully adjusted at the factory and is supplied as one whole block for replacement. In case of replacement, perform the following adjustments.

1. Front-End IFT Adjustment.

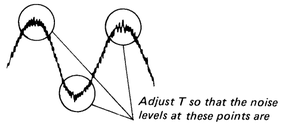
Setting:
Turn ASL off. (See "How to turn ASL off" on page 15.)

Procedure:



Carrier frequency: 98MHz
Modulation: 1kHz, 75kHz deviation (100%)
Output level: 2μV (6dB)

Adjust T so that the noise levels at the peak of the waveforms on the oscilloscope are symmetrical and the output level is maximum.



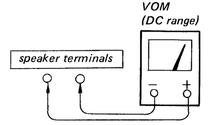
2. Dial Pointer Setting
(Refer to Dial Pointer Setting on page 11.)
3. AM Tuning Adjustments
(Refer to AM Tuning Adjustments on page 13.)

AMP SECTION

Note:
1. DC BALANCE adjustment should be made several minutes after the POWER switch is turned on (POWER ON).
2. After replacing IC701, 702, BALANCE adjustment should be made.

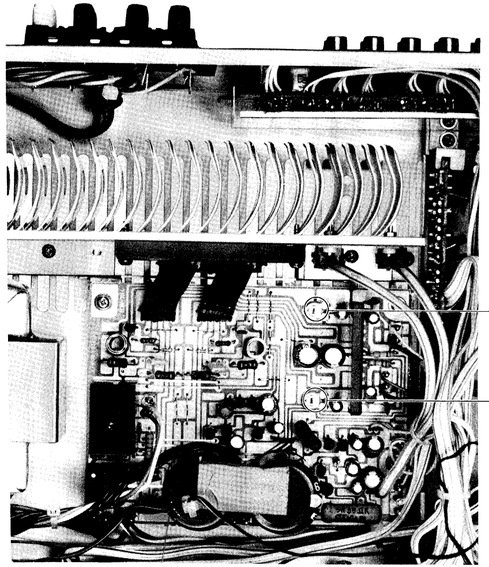
DC Balance Adjustment (with no signal input)

1. Turn Power switch ON. Connect a VOM across speaker terminals.



2. Adjust RT701 (L-CH) and RT751 (R-CH) for 0V reading on the VOM.
(Set the VOM high at first. After obtaining 0V reading, lower the range gradually and adjust RT701 and RT751.)

adjustment level: 0V ±0.05V



7047

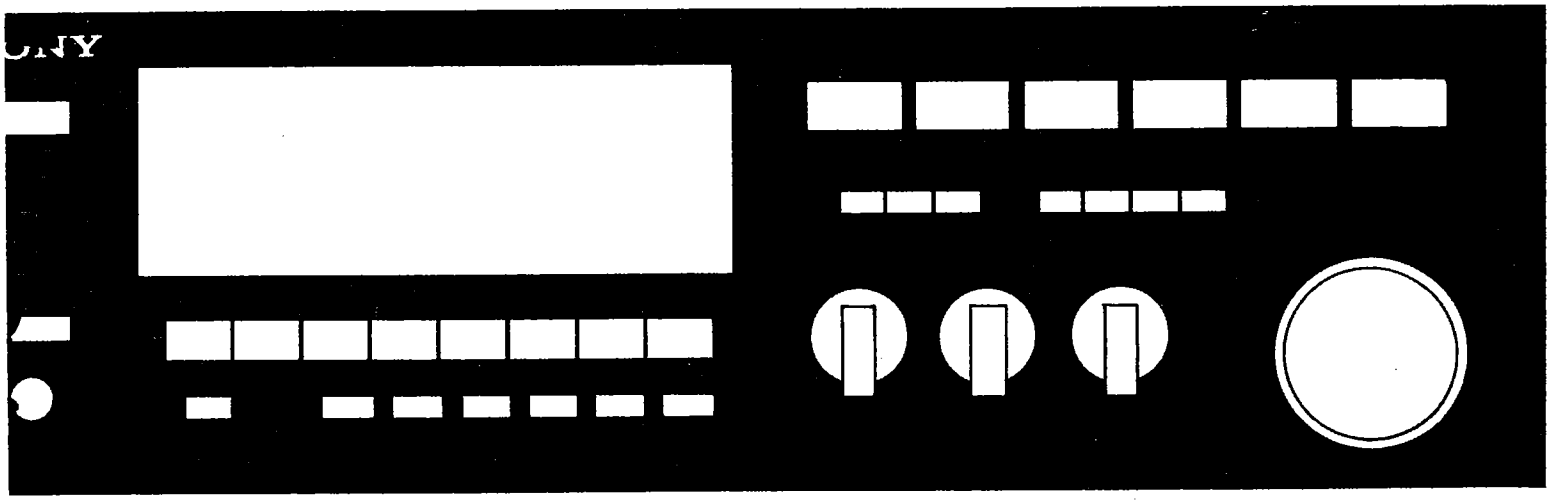
SONY®

Service Division

STEREO RECEIVERS

Models

STR-VX6, -VX5, -VX4, -VX3, -VX2, -VX1



circuit operation

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Speaker Protection Relay Drive and Input Muting 10

Impedance Detector 12

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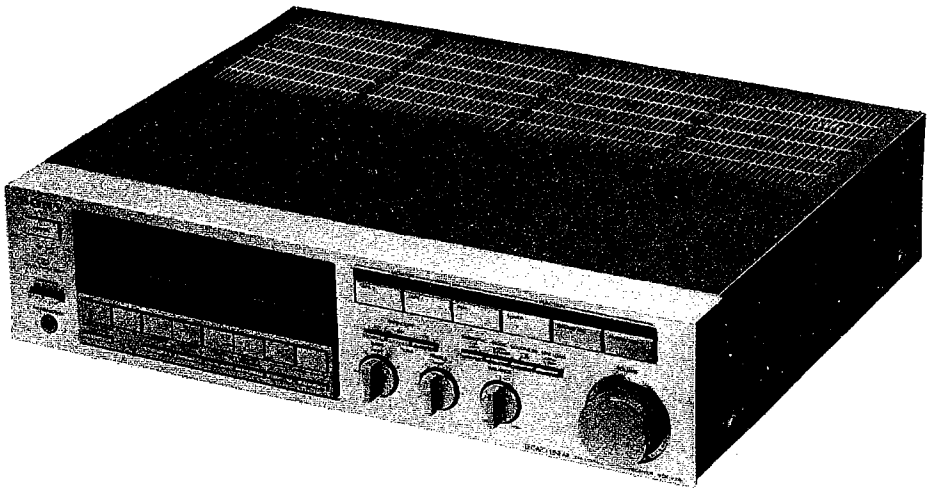
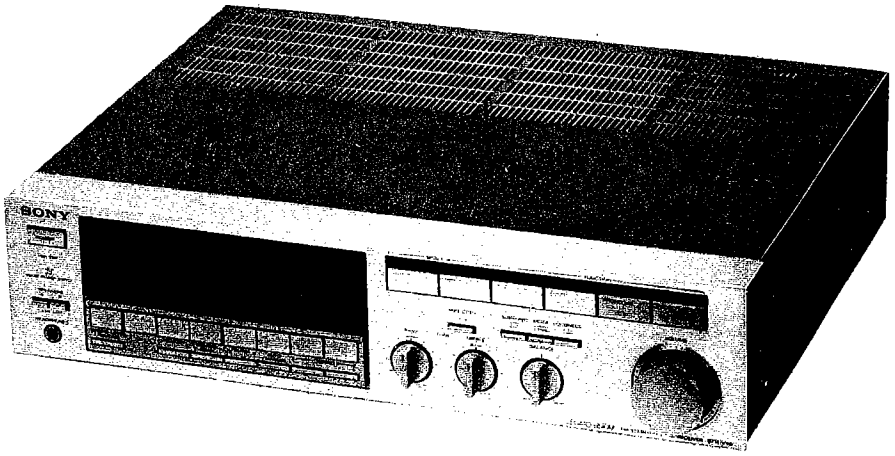
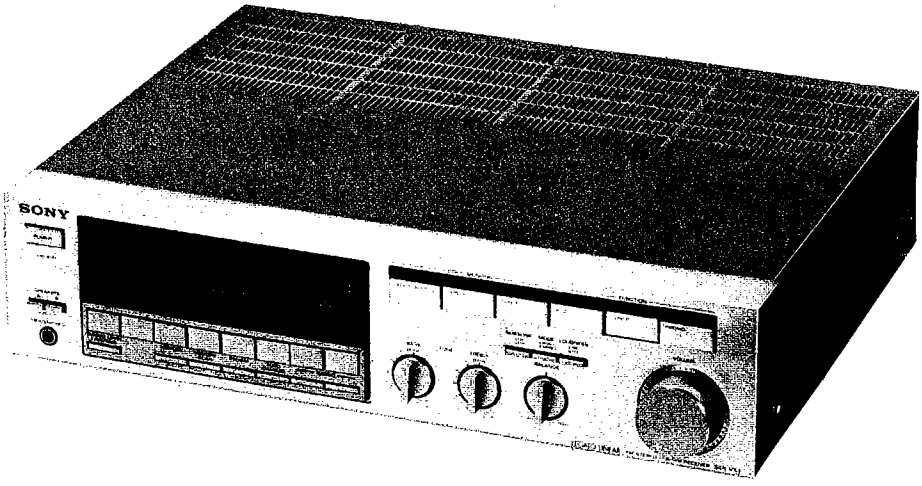
STR-VX Series Receivers



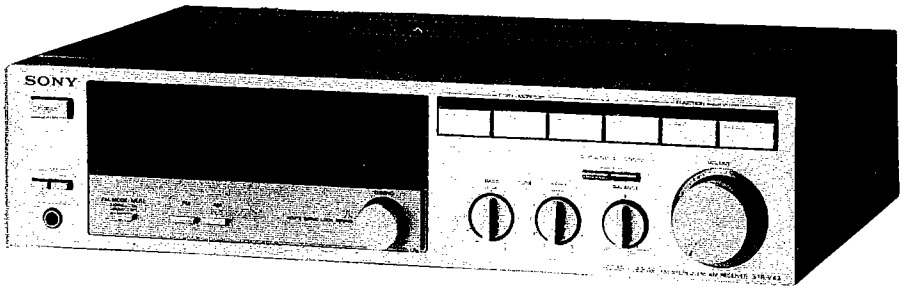
STR-VX6

STR-VX5



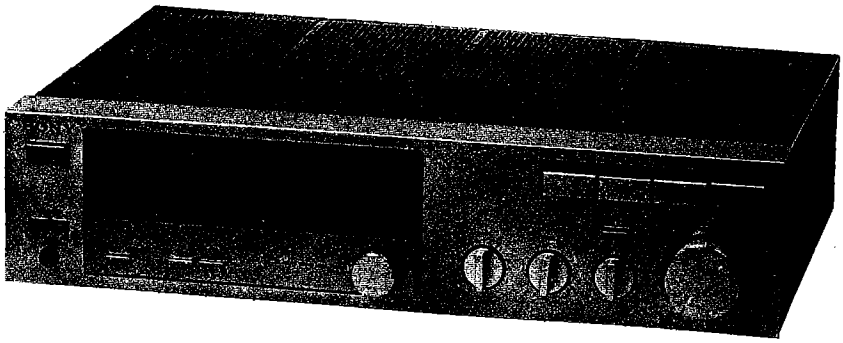


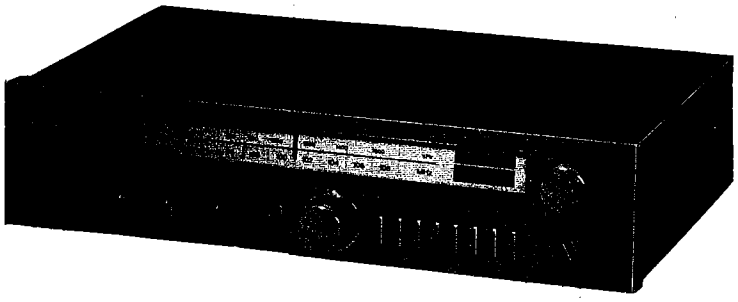
STR-VX4



STR-VX3

STR-VX2





STR-VX1

General Description

The STR-VX series is slightly different from the former STR-V stereo receiver series. The STR-VX series lineup is composed of six receivers from the STR-VX1 to the STR-VX6. The STR-VX6 is the top of the series, and employs a pulse power supply, Legato linear power amplifier, a 70-watt per channel amplifier, and a new PLL integrated circuit in the AM/FM tuner. Table 1 shows a comparison of the STR-VX series.

Table 1. STR-VX Series Comparison Chart

Feature	STR-VX6	STR-VX5	STR-VX4	STR-VX3	STR-VX2	STR-VX1
Output power per channel	70 W	55 W	40 W	35 W	28 W	22 W
DC amplifier & Legato Linear	yes	yes	yes	yes	---	---
Tuning system	PLL synthe-sizer	PLL synthe-sizer	PLL synthe-sizer	Acute Servo Lock	Acute Servo	Program Sensor
Auto tuning/memory scan	yes	yes	yes	---	---	---
Memory preset station	8(FM,AM)	8(FM,AM)	8(FM,AM)	---	---	5(FM)
Auto tuning level sensor	yes	yes	yes	---	---	---
Direct comparator	yes	yes	---	---	---	---
MC phono input	yes	yes	---	---	---	---
MM load selector	yes	---	---	---	---	---
Solid-state switch	yes	yes	---	---	---	---
Pulse power supply	yes	yes	---	---	---	---
Heat pipe	yes	---	---	---	---	---
Pre-out/main-in terminal	yes	---	---	---	---	---

Audio Section

STR-VX1, -VX2, -VX3, -VX4 Phono Equalizer

The entire phono equalizer section in the STR-VX1 and -VX2 is built around a high-performance integrated circuit. The STR-VX3 and -VX4 employ two transistors in a differential configuration before the integrated circuit to obtain a high signal-to-noise ratio (Figure 1).

STR-VX5, -VX6 Phono Equalizer

The basic circuitry in the STR-VX5 and -VX6 are identical to the STR-VX3 and -VX4. However, the STR-VX5 and -VX6 feature input capability for both moving-coil (MC) and moving-magnet type (MM) cartridges (Figure 2). The MC function is obtained by shorting R622 with the relay switch S602, and by reducing the input resistance to 100 ohms by S601. When the MC mode switch is depressed, DC voltage appears from the control circuit. This voltage is reduced by R821 and R824 and fed to the base of Q821 via R823. Then Q821 turns on to energize relay RY601 to close switches S601 and S602.

The STR-VX6 also features an input capacitance selector switch (180pF/330pF) for the MM cartridges by adding R649, C601 and S601-1.

STR-VX1, -VX2 Main Tone Amplifier

The STR-VX1 and -VX2 do not have separated tone and power amplifiers. The STR-VX1 and -VX2 employ a main amplifier with the tone control circuitry incorporated in the negative feedback loop. Because the power integrated circuits (STK-460 for the STR-VX1;

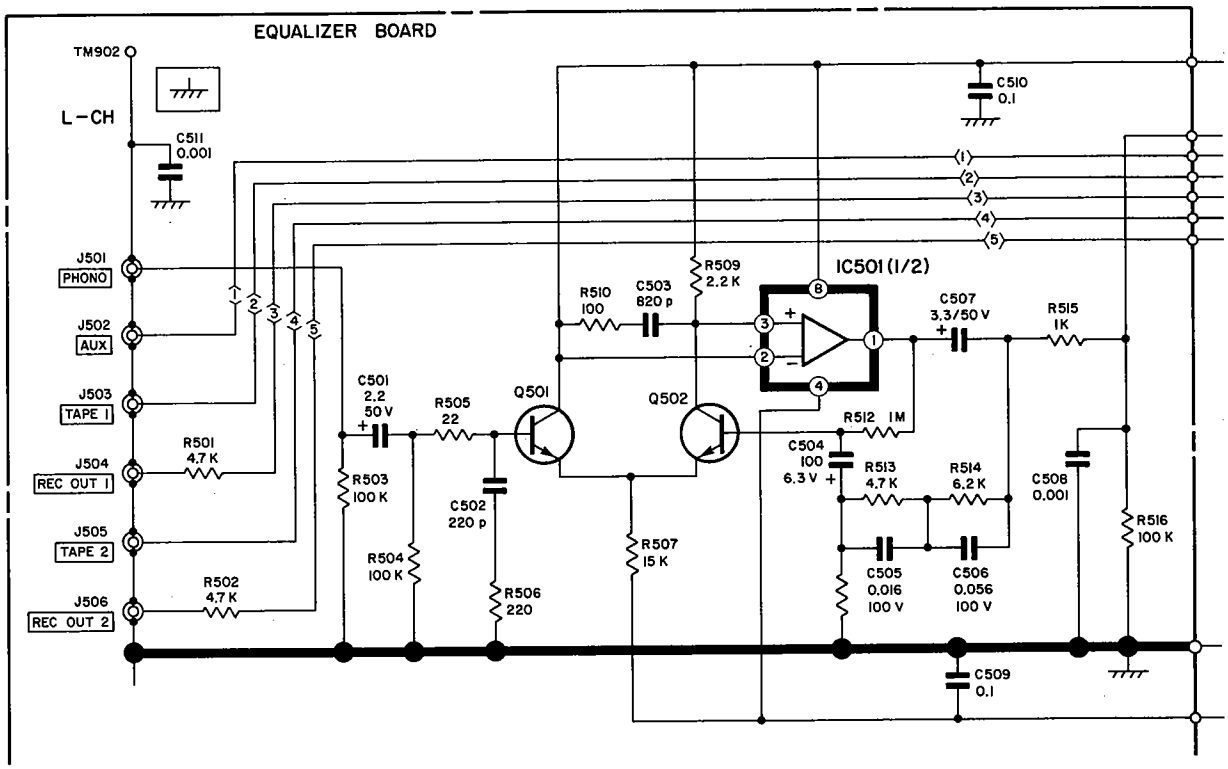


Fig. 1. STR-VX3 Phono Amplifier (Left Channel).

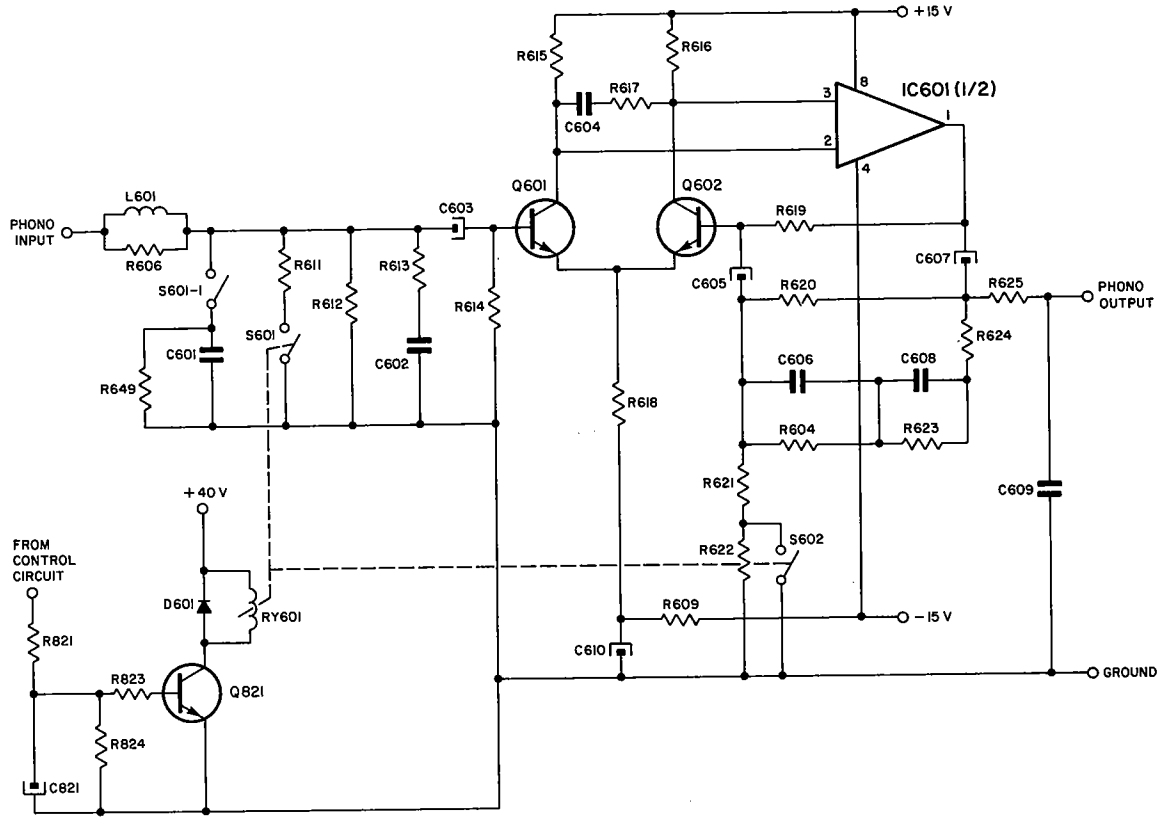


Fig. 2. STR-VX6 Phono Amplifier (Left Channel).

STK-463 for the STR-VX2) have high open-loop gain, when negative feedback is applied, noise and distortion will be reduced. Figure 3 shows the left channel main tone amplifier circuit of the STR-VX1. The simplified version of this circuit is shown in Figure 4. The negative feedback loop between pins 6, 7, and 2 is divided into two parts. The DC negative feedback is determined by R609, R608, and C605. AC negative feedback is determined by all peripheral components. By changing the amount of AC negative feedback with the variable resistors (RV604, RV605), we obtain the desired tone control response. C613 and R616 compensate for flatness at low frequencies. C606 is connected to prevent the tone control elements from affecting the DC negative feedback. C604, C609, R607, R613, C607, C608, R611 and R606 are the peripheral elements to make the circuit stable.

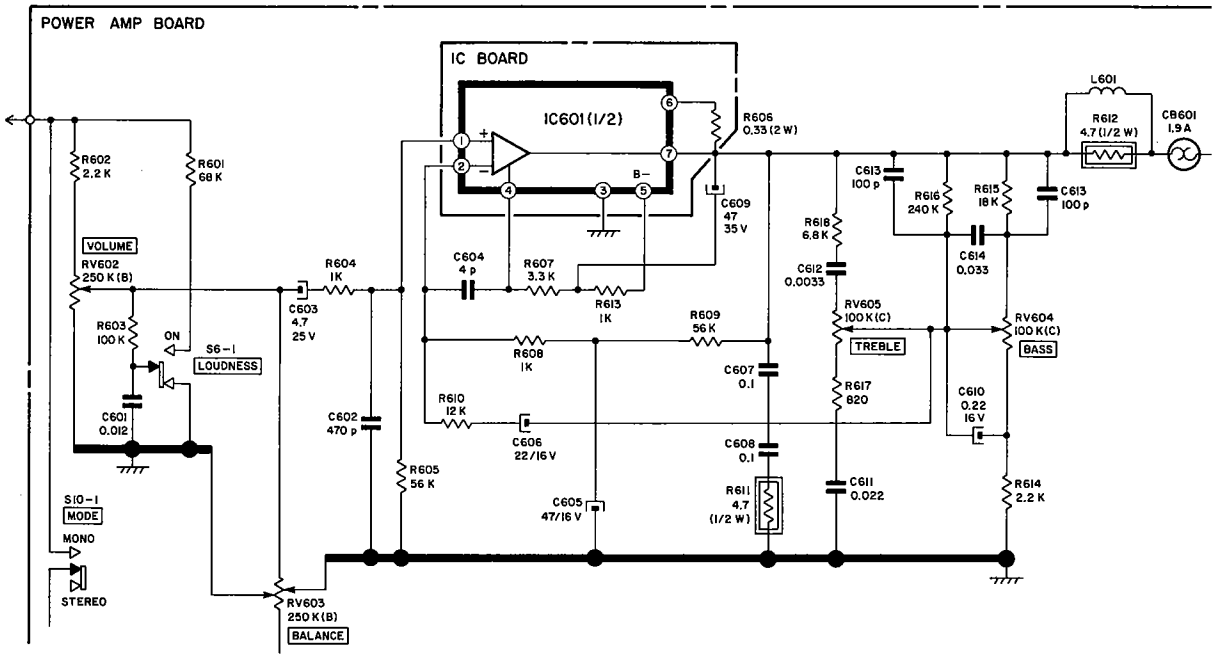


Fig. 3. STR-VX1 Main Tone Amplifier (Left Channel).

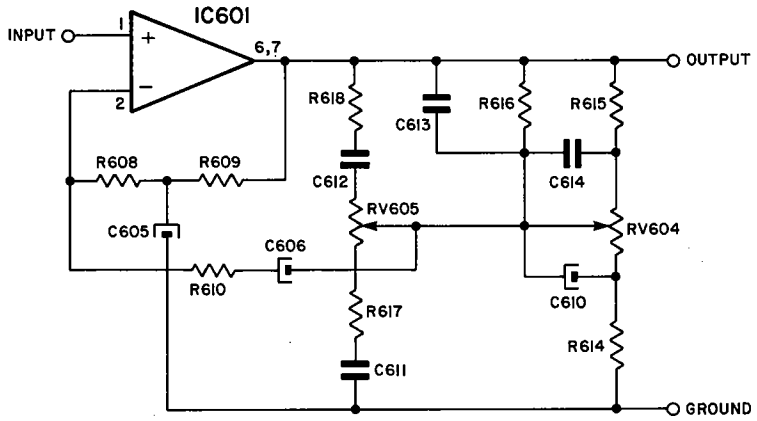


Fig. 4. Simplified Circuit of Fig. 3.

STR-VX3 Tone Amplifier

Like the STR-VX1 and -VX2, the whole control circuitry is built around the operational amplifier NJM4560D (IC601, Figure 5), which is connected in a non-inverting configuration with bass and treble controls incorporated in the negative feedback loop. The STR-VX3 features a subsonic filter that cuts the noise by 12 dB per octave below 15 Hz. This is to eliminate such very low frequency noise as the rumble produced by phono records. Figure 6 shows the simplified subsonic filter circuit of the STR-VX3. When the subsonic filter switch (S6-1) is depressed, the circuit operates as a two-stage high-pass filter (Figure 6b).

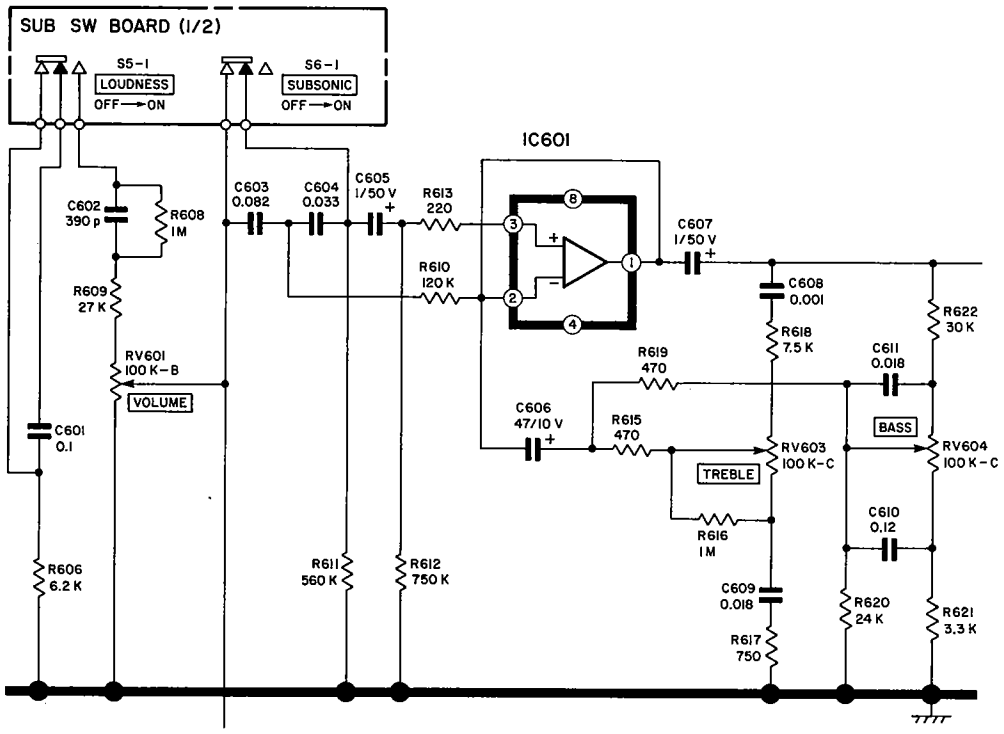


Fig. 5. STR-VX3 Tone Amplifier (Left Channel).

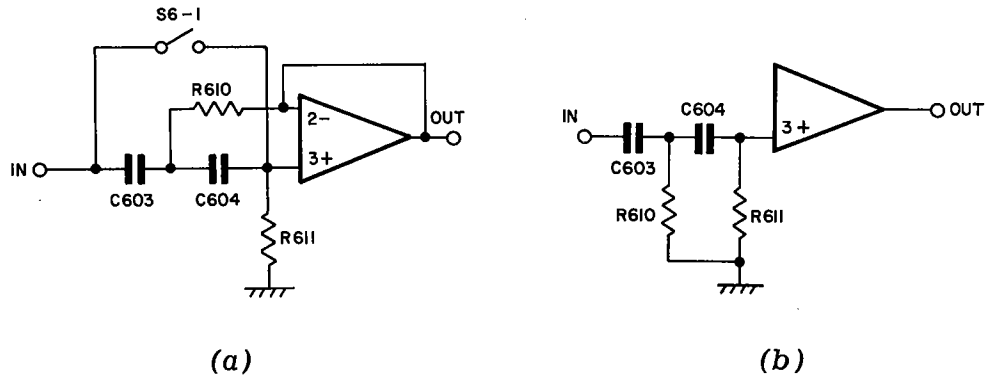


Fig. 6. STR-VX3 Simplified Subsonic Filter Circuit.

STR-VX4, -VX5, -VX6 Tone Amplifier

Four discrete transistors are employed in the tone amplifier (Figure 7). Q603 and Q604 are connected in a differential configuration to eliminate the common-mode noise coming from B+/B- line. Q605 further amplifies the voltage signal coming from Q603. Q606 acts as a constant-current load for Q605. The bass and the treble controls are connected in the negative feedback loop. The STR-VX4, -VX5 and -VX6 also have subsonic filter circuitry. The operation of the circuit is identical to that of the STR-VX3. The STR-VX6, which is the top model of the STR-VX series, features pre-out/main-in terminals for expanded utility.

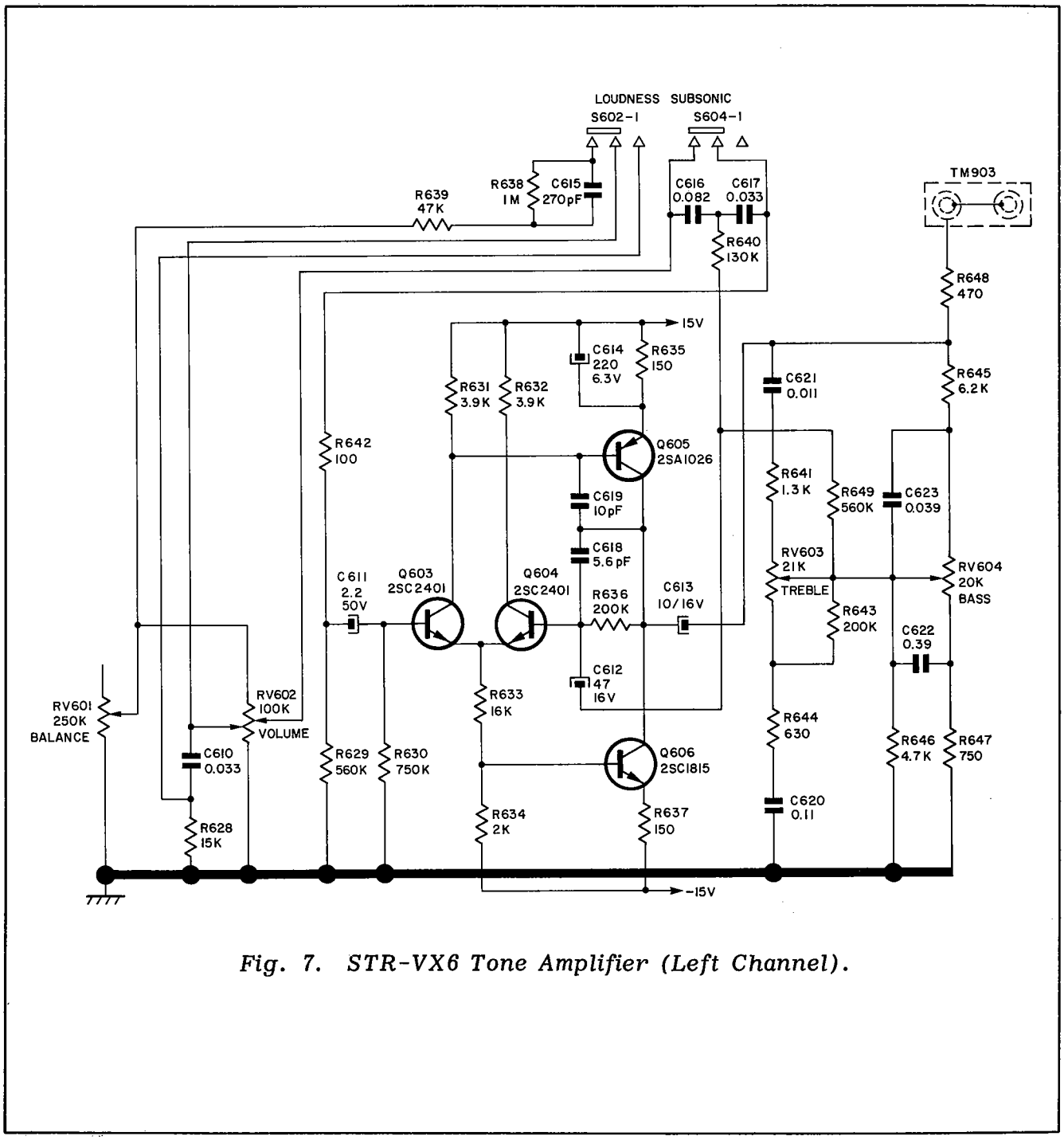


Fig. 7. STR-VX6 Tone Amplifier (Left Channel).

STR-VX3, -VX4 Power Amplifier

These two models employ two kinds of integrated circuits. The STK-3042II is a voltage amplifier, and the STK-2230 is a current amplifier (Figure 8). Both integrated circuits contain two channels. Unlike the power integrated circuit built on one chip, the voltage amplifiers and current amplifiers are separate. This isolates the magnetic flux and provides low noise and distortion. The DC offset voltage is adjustable with the semivariable resistors RT701 and RT751, but the idling current is fixed internally.

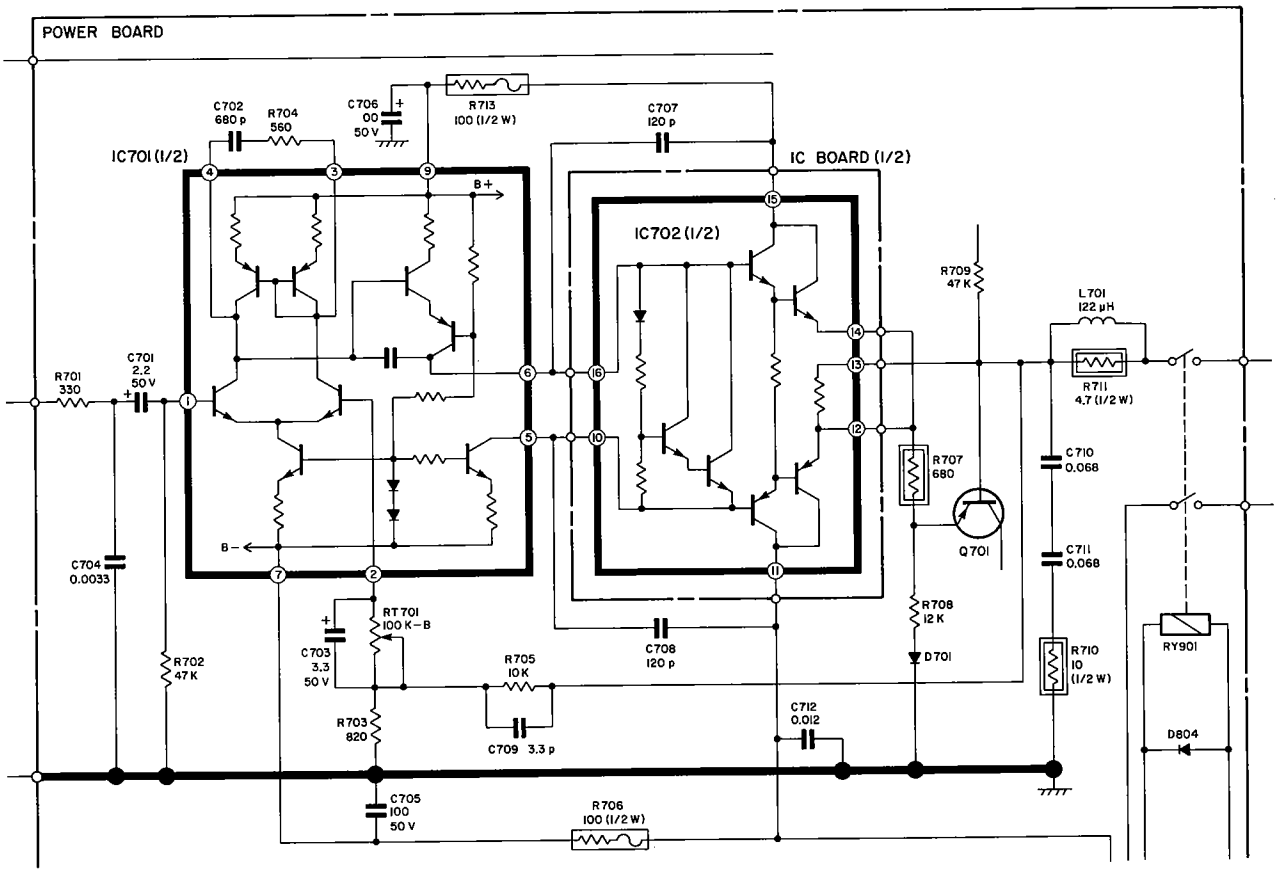


Fig. 8. STR-VX3 Power Amplifier (Left Channel).

STR-VX5, -VX6 Power Amplifier

The left-channel power amplifier circuit of the STR-VX5 is shown in Figure 9. In the first stage, a dual PNP transistor (Q702) is connected to a dual NPN transistor (Q701) as a current mirror for high voltage gain. The DC offset voltage can be zeroed by RV701 if slight DC imbalances occur. The second stage, which consists of Q703 and Q704, supplies more voltage gain. The base-emitter voltage of Q705 is regulated by D701, D704, and R717. Q705 acts as a regulated current source for Q703 and Q704. D702, which is a varistor consisting of four diodes connected in series, biases the output stage in class AB mode to reduce crossover distortion. The bias current is adjustable by RV702. The complementary output stage consists of Q706, Q707, Q708 and Q709.

The power amplifier of the STR-VX6 is nearly identical to that of the STR-VX5, except for the absence of an input capacitor, and a dual FET (Q701), which configures a DC amplifier. Q703 and Q704 are connected between Q701 and the current mirror Q702 to reduce high-frequency distortion caused by the gate-drain capacitance of Q701. Q705, D701, D702 and R710 are a regulated current source for Q701, and the DC offset voltage is adjustable by RV701. Current gain is supplied by Q710, Q711, Q712, Q713, Q714, and Q715, which are connected in a three-stage Darlington arrangement.

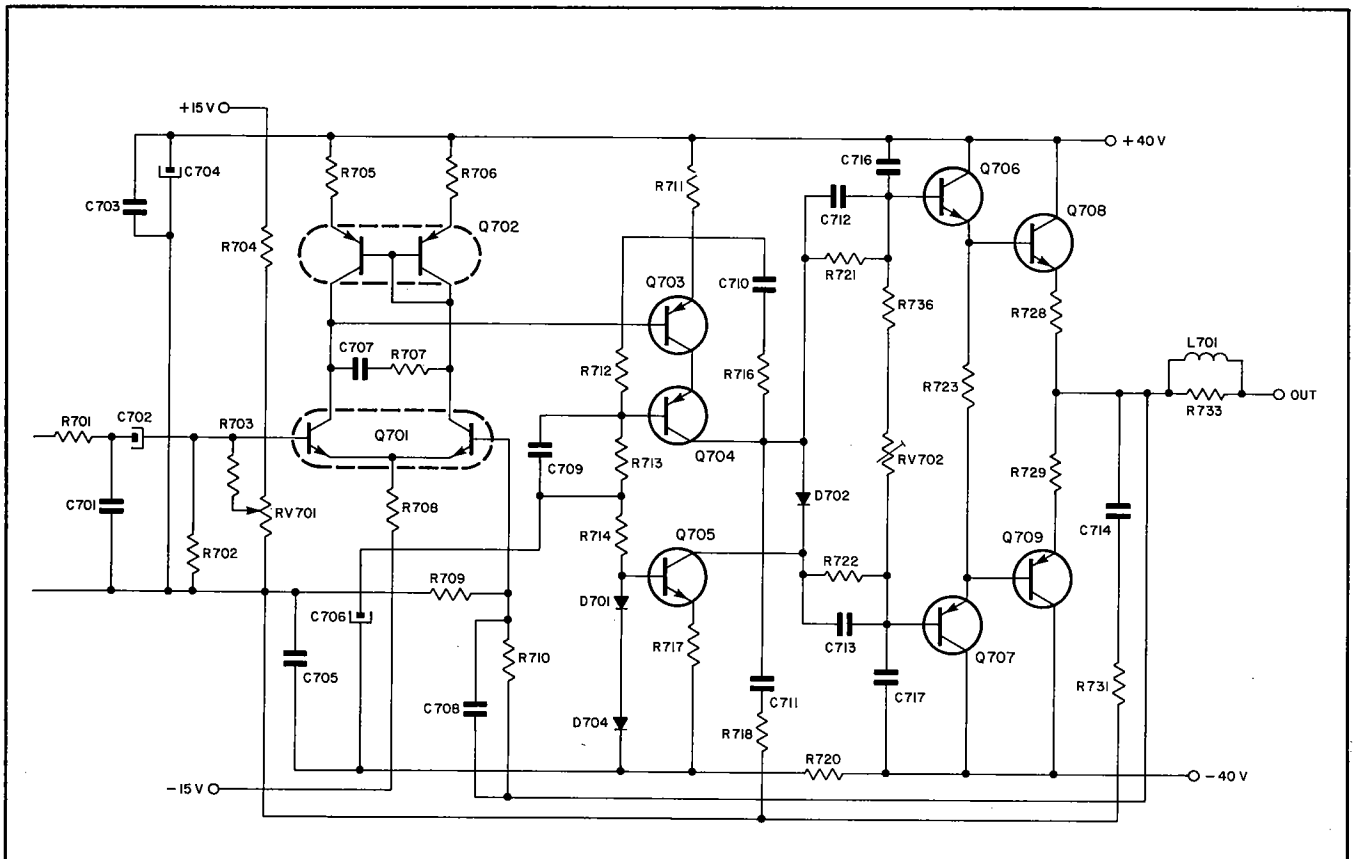


Fig. 9. STR-VX5 Power Amplifier (Left Channel).

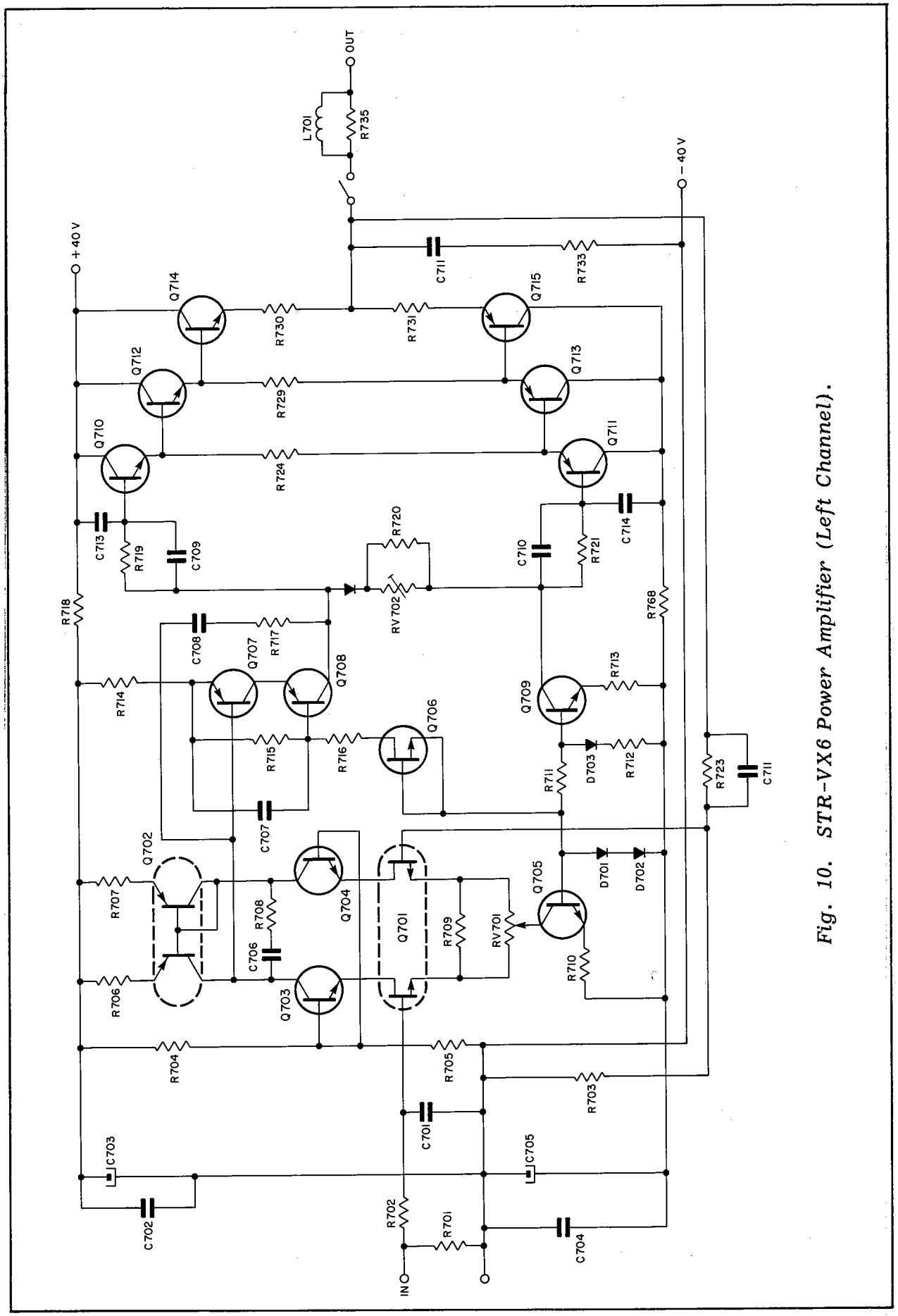


Fig. 10. STR-VX6 Power Amplifier (Left Channel).

Power Supply (all models)

The STR-VX1, -VX2 and -VX4 employ conventional power supplies. The STR-VX5 and -VX6 employ pulse power supplies. The configuration of the pulse power supply is identical to that of previous models, and will not be discussed here.

STR-VX3, -VX4, -VX5 and -VX6 Protection Circuit

Table 2 summarizes the protection circuit employed in each model. The protection circuits used in the STR-VX6 will be discussed here.

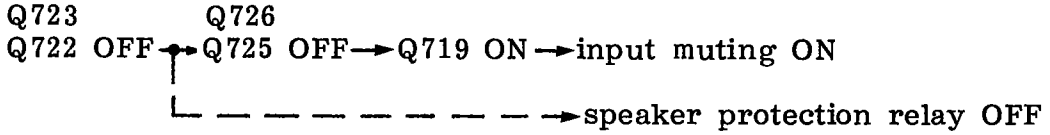
Table 2.

	STR-VX6	-VX5	-VX4	-VX3	-VX2	-VX1
Speaker Protection	relay	relay	relay	relay	circuit breaker (1.9A)	circuit breaker (1.9A)
Current Limiter	Yes	Yes	Yes	No	No	No
DC Voltage Detector	Yes	Yes	Yes	Yes	No	No
Impedance Detector	Yes	Yes	Yes	Yes	No	No
B+ Detector	Yes	Yes	Yes	Yes	No	No
Input Muting	Yes	No	No	No	No	No
Primary Fuse or Circuit Breaker	5A	5A	3.15A	2.5A	2A	2A
In-Rush Current Relay	Yes	Yes	No	No	No	No

Speaker Protection Relay Drive and Input Muting

A relay is employed to protect both the speakers and the amplifier itself. The following events take place when the power switch is turned on or turned off. Refer to Figure 11.

1. Immediately after power switch is turned on



2. Several seconds after power switch is turned on

   Base-emitter voltage of Q722 rises to 0.6V.

   Q723 Q726
   Q722 ON → Q725 ON → Q719 OFF → input muting OFF
   → speaker protection relay ON

3. Power switch is turned off

   Q723 Q726
   Q722 OFF → Q725 OFF → Q719 ON (momentarily) → input muting ON (momentarily)
   → speaker protection relay OFF

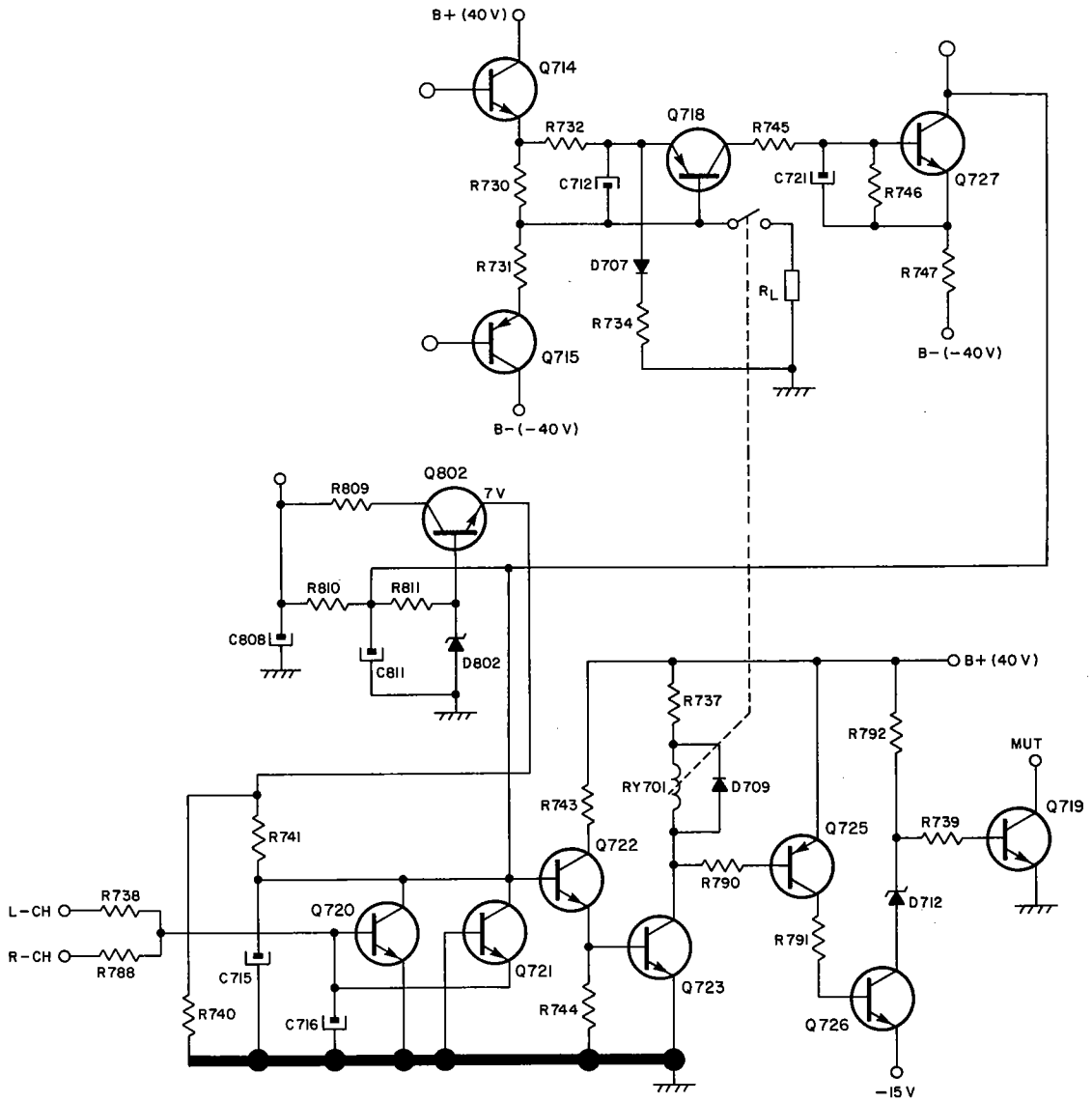


Fig. 11. Relay Drive, Input Muting and Impedance Detector Circuit.

Impedance Detector

The circuit feeds a signal to the relay drive circuit to open the relay switch in order to protect the speakers if excess current flows in the output stage. When the base-emitter voltage of Q718 is raised to 0.6V, Q727 turns on. Then, the collector voltage of Q727 goes low. Because the collector of Q727 is connected to the base of Q722, Q722 turns off, disengaging the relay switch as shown in Figure 11.

Current Limiter

When a very low impedance speaker is connected or extremely high output current flows in the output stage, the current limiter operates to protect the amplifier. If the base-emitter voltage of Q716 is raised to 0.6V because of an excessive voltage drop across R730, Q716 turns on, and the voltage between points A and B will become about 0.6V as shown in Figure 12. This cuts off the driver transistors (Q710, Q712) and output transistor Q714. Likewise, if the base-emitter voltage of Q717 is raised to 0.6V via R728 from R731, Q717 turns on. Then Q711, Q713 and Q715 switch off. D705 and D706 are connected to prevent current from flowing from the output to the input of the driver stage via Q716 and R727, or Q717 and R728.

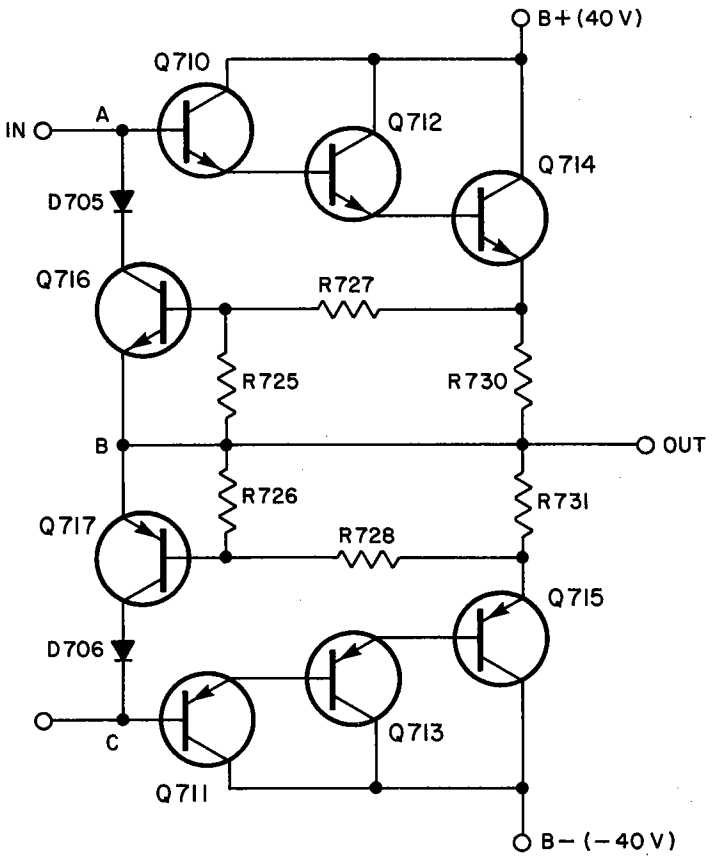


Fig. 12. Current Limiter.

STR-VX5, -VX6 Electronic Switch

The STR-VX5 and -VX6 employ electronic switches for the input function selectors. An integrated circuit (CX-770) contains 6 of these CMOS analog switches as shown in Figure 13. As the switches are remotely controlled by a DC voltage, the input function selectors can be located near the input terminals. This means that there is less hum and noise pickup from long wires.

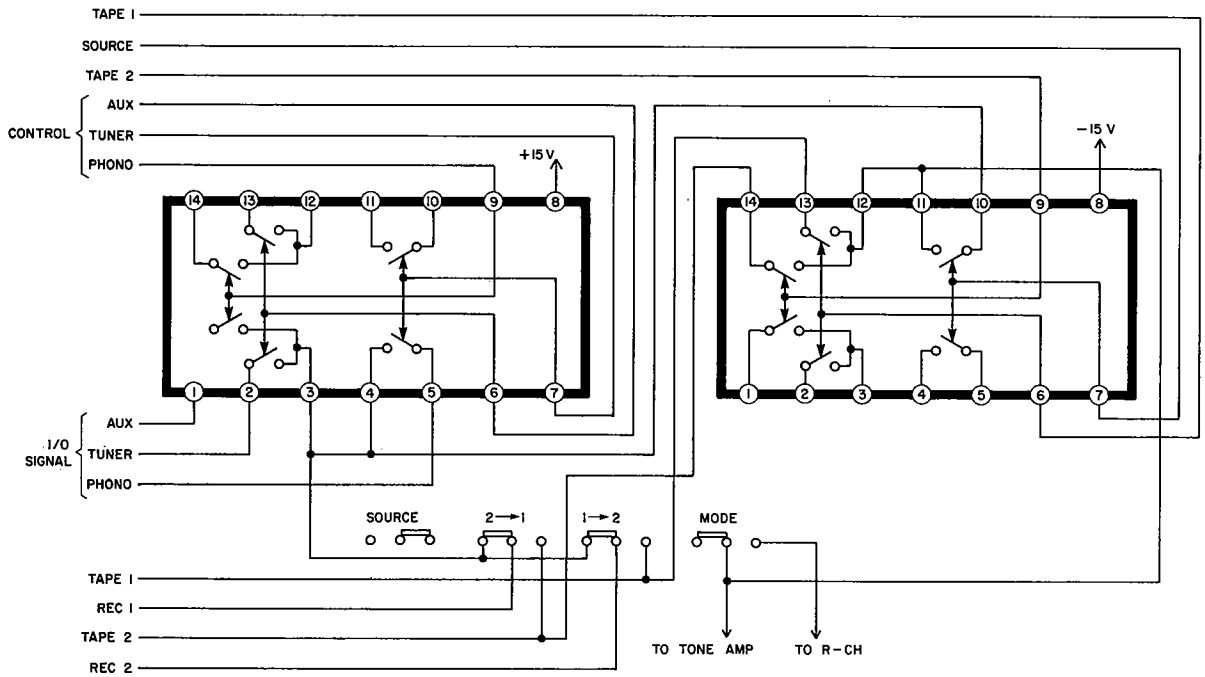


Fig. 13. Function Selector Electronic Switches.